1952 + 1953

RYERSON STEELS

REG. U.S. PAT. OFF.

JOSEPH T. RYERSON & SON INC.

Phone: Kirkland 7-6000

Mail Address: Box 1111, BOSTON 3, MASS.

Plant: Third & Binney Streets, Cambridge, Mass.

Teletype: CAMB MASS 186

Personal Service

to Help You Buy Steel

In order to give you the most direct personal service we list below the key people in various departments which you may have occasion to contact.

All are specialists in their lines — well qualified to help you in specifying, fabricating or other steel problems. They all stand ready to supplement the service of your regular Ryerson representatives by cooperating closely with you.

This direct contact saves your time and enables you to take full advantage of our experienced organization; so do not hesitate to get in touch with any of us. Whether you have an inquiry or order — or just seek information, we are always ready to work with you.

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M. J. Coleman, KI 7-7577

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EASY TO FIGURE NET PRICES

In the very back of this book, Base Prices are included in a separate folder*. Size and Quality Extras are on the product pages within the book. And Cutting Extras are grouped together in the final thumb-tabbed section.

Thus with all the extras in the book itself—along with the base price folder in the back—you have complete facilities for estimating the cost of the steel you specify. It is only necessary to add transportation costs to get delivered prices.

If we can be of any further help to you on prices, steel selection, heat treatment, processing or application, we invite you to talk directly with our experienced steel men. They will work closely with you on any steel problem and help find alternate sizes and qualities when the exact steel you specify is not in stock.

If the Base Price folder is not in this book and you need to figure prices, we will gladly send one to you.

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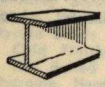
STRUCTURAL I BEAMS

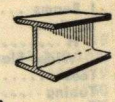
A.S.T.M.—A7-49T for bridges and buildings.

Tensile strength 60,000 to 72,000 lbs. per square inch.

Size in Inches	Wt. per Ft., Lbs.	Size Extra	Thickness of Web	Width of Flange	Stock Lgths., Ft.
3	5.7	.80	0.170	2.330	5-50
	7.5	.80	0.349	2.509	5-60
4	7.7	.55	0.190	2.660	5-60
	9.5	.55	0.326	2.796	5-60
5	10.0	.40	0.210	3.000	5-60
	14.75	.40	0.494	3.284	5-60
6	12.5	.50	0.230	3.330	5-60
	17.25	.50	0.465	3.565	5-60
7	15.3	.45	0.250	3.660	5-60
	20.0	.45	0.450	3.860	5-60
8	18.4	.40	0.270	4.000	5-60
	23.0	.40	0.441	4.171	5-60
10	25.4	.30	0.310	4.660	5-60
	35.0	.30	0.594	4.944	5-60
12	31.8	.30	0.350	5.000	5-60
	35.0	.30	0.428	5.078	N.Y. 5-60
	40.8	.30	0.460	5.250	5-60
	50.0	.30	0.687	5.477	N.Y. 5-60
15	42.9	.25	0.410	5.500	5-60
	50.0	.25	0.550	5.640	N.Y. 5-60
18	54.7	.30	0.460	6.000	5-60
	70.0	.30	0.711	6.251	Chgo. 5-60
20	65.4	.30	0.500	6.250	N.Y. 5-60
24	79.9	.35	0.500	7.000	N.Y. 5-60
	100.0	.35	0.747	7.247	Buff. 5-60
	105.9	.35	0.625	7.875	Chgo. 5-60



STRUCTURAL WIDE FLANGE SECTIONS



A.S.T.M.—A7-49T for bridges and buildings.

Tensile strength 60,000 to 72,000 lbs. per square inch.

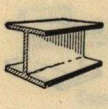
Section & Size in Inches	Wt. per Ft., Lbs.	Size Extra	Depth of Section	Width of Flange	Thickness of Web	Stock Lgths., Ft.
4x 4	13.0	.80	4.16	4.060	.280	5-60
5x 5	18.9	.60	5.00	5.000	.313	5-60
6x 4	8.5	.95	5.83	3.940	.170	5-60
	12.0	.80	6.00	4.000	.230	5-60
	16.0	.80	6.25	4.030	.260	N.Y. 5-60
6x 6	15.5	.65	6.00	6.000	.240	5-60
	20.0	.65	6.20	6.018	.258	5-60
	25.0	.65	6.37	6.080	.320	5-60
8x 4	10.0	.95	7.90	3.940	.170	5-60
	13.0	.80	8.00	4.000	.230	5-60
	15.0	.80	8.12	4.015	.245	N.Y. 5-60
8x 5¼	17.0	.50	8.00	5.250	.230	5-60
	20.0	.50	8.14	5.268	.248	5-60

(Continued)

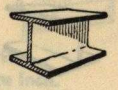
5' or longer cut without charge. Under 5', see charges on page 225.

I BEAMS—INLAND HI-STEEL

See page 66



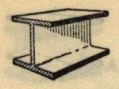
STRUCTURAL WIDE FLANGE AND H SECTIONS



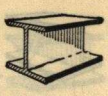
A.S.T.M.—A7-49T for bridges and buildings.
Tensile strength 60,000 to 72,000 lbs. per square inch.

Section & Size in Inches	Wt. per Ft., Lbs.	Size Extra	Depth of Section	Width of Flange	Thickness of Web	Stock Lgths., Ft.
(Continued)						
8x 6½	24.0	.40	7.93	6.500	.245	5-60
	28.0	.40	8.06	6.540	.285	N.Y. 5-60
8x 8	31.0	.35	8.00	8.000	.288	5-60
H	34.3	.35	8.00	8.000	.375	Buff. 5-60
	35.0	.35	8.12	8.027	.315	N.Y. 5-60
	40.0	.35	8.25	8.077	.365	5-60
	48.0	.35	8.50	8.117	.405	N.Y. 5-60
	58.0	.35	8.75	8.222	.510	N.Y. 5-60
	67.0	.35	9.00	8.287	.575	N.Y. 5-60
10x 4	11.5	.80	9.87	3.950	.180	5-60
	15.0	.75	10.00	4.000	.230	5-60
	17.0	.75	10.12	4.010	.240	N.Y. 5-60
	19.0	.75	10.25	4.020	.250	N.Y. 5-60
10x 5¾	21.0	.40	9.90	5.750	.240	5-60
	25.0	.40	10.08	5.762	.252	5-60
	29.0	.40	10.22	5.799	.289	N.Y. 5-60
10x 8	33.0	.35	9.75	7.964	.292	5-60
	39.0	.35	9.94	7.990	.318	5-60
	45.0	.35	10.12	8.022	.350	N.Y. 5-60
10x10	49.0	.30	10.00	10.000	.340	5-60
	54.0	.30	10.12	10.028	.368	N.Y. 5-60
	60.0	.30	10.25	10.075	.415	5-60
	66.0	.30	10.38	10.117	.457	Chgo. 5-60
	72.0	.30	10.50	10.170	.510	N.Y. 5-60
	77.0	.30	10.62	10.195	.535	Chgo. 5-60
	89.0	.30	10.88	10.275	.615	Chgo. 5-60
	100.0	.30	11.12	10.345	.685	N.Y. 5-60
	112.0	.30	11.38	10.415	.755	N.Y. 5-60
12x 4	14.0	.80	11.91	3.970	.200	N.Y. 5-60
	16.5	.65	12.00	4.000	.230	N.Y. 5-60
	19.0	.65	12.16	4.010	.240	N.Y. 5-60
	22.0	.65	12.31	4.030	.260	N.Y. 5-60
12x 6½	27.0	.35	11.96	6.500	.240	5-60
	31.0	.35	12.09	6.525	.265	N.Y. 5-60
	36.0	.35	12.24	6.565	.305	5-60
12x 8	40.0	.35	11.94	8.000	.294	5-60
	45.0	.35	12.06	8.042	.336	5-60
	50.0	.35	12.19	8.077	.371	N.Y. 5-60
12x10	53.0	.35	12.06	10.000	.345	5-60
	58.0	.35	12.19	10.014	.359	Chgo. 5-60
12x12	65.0	.35	12.12	12.000	.390	5-60
	72.0	.35	12.25	12.040	.430	N.Y. 5-60
	79.0	.35	12.38	12.080	.470	N.Y. 5-60
	85.0	.35	12.50	12.105	.495	N.Y. 5-60
	99.0	.35	12.75	12.190	.580	N.Y. 5-60
	106.0	.35	12.88	12.230	.620	N.Y. 5-60
	120.0	.35	13.12	12.320	.710	N.Y. 5-60
(Continued)						

5' or longer cut without charge. Under 5', see charges on page 225.



STRUCTURAL WIDE FLANGE SECTIONS

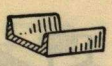


A.S.T.M.—A7-49T for bridges and buildings.

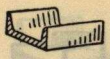
Tensile strength 60,000 to 72,000 lbs. per square inch.

Section & Size in Inches	Wt. per Ft., Lbs.	Size Extra	Depth of Section	Width of Flange	Thickness of Web	Stock Lgths., Ft.
(Continued)						
14x 6¾	30.0	.35	13.86	6.733	.270	5-60
	34.0	.35	14.00	6.750	.287	5-60
	38.0	.35	14.12	6.776	.313	N.Y. 5-60
14x 8	43.0	.35	13.68	8.000	.308	5-60
	48.0	.35	13.81	8.031	.339	N.Y. 5-60
	53.0	.35	13.94	8.062	.370	5-60
14x10	61.0	.35	13.91	10.000	.378	N.Y. 5-60
	68.0	.35	14.06	10.040	.418	N.Y. 5-60
	74.0	.35	14.19	10.072	.450	N.Y. 5-60
14x12	78.0	.35	14.06	12.000	.428	N.Y. 5-60
14x14½	87.0	.35	14.00	14.500	.420	N.Y. 5-60
	95.0	.35	14.12	14.545	.465	N.Y. 5-60
16x 7	36.0	.35	15.85	6.992	.299	5-60
	40.0	.35	16.00	7.000	.307	5-60
	45.0	.35	16.12	7.039	.346	5-60
	50.0	.35	16.25	7.073	.380	N.Y. 5-60
16x 8½	58.0	.25	15.86	8.464	.407	5-60
	64.0	.25	16.00	8.500	.443	N.Y. 5-60
	71.0	.25	16.16	8.543	.486	N.Y. 5-60
16x11½	88.0	.25	16.16	11.502	.504	N.Y. 5-60
18x 7½	50.0	.20	18.00	7.500	.358	5-60
	55.0	.20	18.12	7.532	.390	N.Y. 5-60
18x 8¾	64.0	.20	17.87	8.715	.403	N.Y. 5-60
	70.0	.20	18.00	8.750	.438	N.Y. 5-60
	77.0	.20	18.16	8.787	.475	N.Y. 5-60
	85.0	.20	18.32	8.838	.526	N.Y. 5-60
18x11¾	96.0	.20	18.16	11.750	.512	N.Y. 5-60
21x 8¼	62.0	.30	20.99	8.240	.400	5-60
	68.0	.30	21.13	8.270	.430	N.Y. 5-60
	73.0	.30	21.24	8.295	.455	N.Y. 5-60
21x 9	82.0	.25	20.86	8.962	.499	N.Y. 5-60
21x13	112.0	.25	21.00	13.000	.527	Chgo. 5-60
24x 9	76.0	.30	23.91	8.985	.440	N.Y. 5-60
	84.0	.30	24.09	9.015	.470	N.Y. 5-60
	94.0	.30	24.29	9.061	.516	N.Y. 5-60
24x12	100.0	.30	24.00	12.000	.468	5-60
	120.0	.30	24.31	12.088	.556	N.Y. 5-60
27x10	94.0	.30	26.91	9.990	.490	N.Y. 5-60
	102.0	.30	27.07	10.018	.518	N.Y. 5-60
	114.0	.30	27.28	10.070	.570	N.Y. 5-60

5' or longer cut without charge. Under 5', see charges on page 225.



CHANNELS—STRUCTURAL



A.S.T.M.—A7-49T for bridges and buildings.
Tensile strength 60,000 to 72,000 lbs. per square inch.

Depth of Channel, Inches	Wt. per Ft., Lbs.	Size Extra	Thickness of Web	Width of Flange, Inches	Stock Lgths., Ft.
For smaller sizes see Channels—Bar Sizes, on page 16.					
3	4.1	.80	0.170	1.410	5-60
	5.0	.80	0.258	1.498	5-60
	6.0	.80	0.356	1.596	5-60
4	5.4	.60	0.180	1.580	5-60
	7.25	.60	0.320	1.720	5-60
5	6.7	.45	0.190	1.750	5-60
	9.0	.45	0.325	1.885	5-60
6	8.2	.40	0.200	1.920	5-60
	10.5	.40	0.314	2.034	5-60
	13.0	.40	0.437	2.157	5-60
7	9.8	.50	0.210	2.090	5-60
	12.25	.50	0.314	2.194	5-60
	14.75	.50	0.419	2.299	5-60
8	11.5	.45	0.220	2.260	5-60
	13.75	.45	0.303	2.343	5-60
	18.75	.45	0.487	2.527	5-60
9	13.4	.40	0.230	2.430	5-60
	15.0	.40	0.285	2.485	5-60
	20.0	.40	0.448	2.648	5-60
10	15.3	.35	0.240	2.600	5-60
	20.0	.35	0.379	2.739	5-60
	25.0	.35	0.526	2.886	5-60
	30.0	.35	0.673	3.033	5-60
12	20.7	.30	0.280	2.940	5-60
	25.0	.30	0.387	3.047	5-60
	30.0	.30	0.510	3.170	5-60
15	33.9	.30	0.400	3.400	5-60
	40.0	.30	0.520	3.520	5-60
	50.0	.30	0.716	3.716	N.Y. 5-60
18	45.8	.35	0.500	4.000	5-60

ROLLED STEEL JOISTS

(Junior Beams)

A.S.T.M.—A7-49T for bridges and buildings.
Tensile strength 60,000 to 72,000 lbs. per square inch.

Copper Bearing Quality

Junior Beams are being used in practically all types of buildings. They are particularly adapted for use in school buildings, stores, apartment houses, residences and other light occupancy structures. The success of Junior Beams is based on their simplicity of design and ease of installation; their adaptability, light weight and the economies which can be effected by use of them.

Size in Inches	Wt. per Ft., Lbs.	Width of Flange	Thick. of Web	Size Extra*	Stock Lgths., Ft.	Area, Sq. Inches
6	4.4	1.84	.114	Base	60	1.30
8	6.5	2.28	.135	"	60	1.92
10	9.0	2.69	.155	"	60	2.64
12	11.8	3.063	.175	"	45	3.45

*Use Junior Beam Special base price.
5' or longer cut without charge. Under 5', see charges on page 225.

CHANNELS—SHIP AND CAR

A.S.T.M.—A7-49T for bridges and buildings.

Tensile strength 60,000 to 72,000 lbs. per square inch.

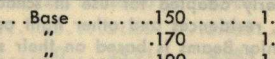
Depth of Channel, Inches	Wt. per Ft., Lbs.	Size Extra	Thickness of Web	Width of Flange, Inches	Stock Lgths., Ft.
3	7.1	.70	.313	1.938	5-60
4	13.8	.50	.500	2.500	5-60
6	12.0	.50	.313	2.500	5-60
	15.3	.50	.340	3.500	5-60
	16.3	.50	.375	3.000	N.Y. 5-60
	18.0	.50	.375	3.500	5-60
7	17.6	.45	.375	3.000	Phil. 5-60
	19.1	.45	.350	3.450	Chgo. 5-40
	22.7	.45	.500	3.600	N.Y. 5-40
8	18.7	.40	.350	2.975	Phil. 5-60
	20.0	.40	.400	3.025	N.Y. 5-60
	21.4	.40	.375	3.450	N.Y. 5-60
	22.8	.40	.425	3.500	5-60
9	25.4	.40	.450	3.500	N.Y. 5-60
10	21.9	.35	.325	3.450	5-60
	24.9	.35	.375	3.400	5-60
	28.5	.35	.425	3.950	N.Y. 5-60
12	32.9	.30	.500	3.500	5-60
	35.0	.30	.467	3.767	Chgo. 5-60
13	31.8	.35	.375	4.000	5-60
	50.0	.35	.787	4.412	N.Y. 5-60
18	42.7	.35	.450	3.950	Phil. 5-60
	45.8	.35	.500	4.000	5-60
	58.0	.35	.700	4.200	Chgo. 5-60

5′ or longer cut without charge. Under 5′, see charges on page 225.

ROLLED STAIR STRINGER CHANNELS

A.S.T.M.—A7-49T for bridges and buildings.

Tensile strength 60,000 to 72,000 lbs. per square inch.

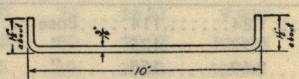


Light weight, straight, neat appearing. Rolled especially for stair stringers, although useful for many other purposes for which a lighter than standard structural channel is required.

Web Width, Inches	Wt. per Ft., Lbs.	Size Extra*	"T" Thickness of Web	"D" Width of Flange	Stock Lgths., Ft.
10	6.5	Base	.150	1.125	N.Y. 5-40
	8.4	"	.170	1.500	5-40
12	10.6	"	.190	1.500	5-40

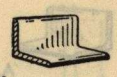
*Use Stair Channel special base price.

PRESSED STEEL STAIR STRINGERS



Pressed to order from 3/16" and 1/4" hot rolled steel. Rounded corners. Web width optional. Lengths up to 24 ft.

ANGLES—STRUCTURAL



A.S.T.M.—A7-49T for bridges and buildings.

Tensile strength 60,000 to 72,000 lbs. per square inch.

Size in Inches	Weight per Ft., Lbs.	Size Extra	Stock Lengths, Ft.
For smaller sizes—See Angles, Bar Sizes on page 14.			
3 x2 x3/16	3.07	.40	5-60
1/4	4.1	Base	5-60
5/16	5.0	"	5-60
3/8	5.9	"	5-60
1/2	7.7	"	5-60
3 x2 1/2 x 1/4	4.5	"	5-60
5/16	5.6	"	5-60
3/8	6.6	"	5-60
1/2	8.5	"	N.Y. 5-60
3 x3 x3/16	3.71	.25	5-60
1/4	4.9	Base	5-60
5/16	6.1	"	5-60
3/8	7.2	"	5-60
7/16	8.3	"	N.Y. 5-60
1/2	9.4	"	5-60
3 1/2 x 2 1/2 x 1/4	4.9	.15	5-60
5/16	6.1	.15	5-60
3/8	7.2	.15	5-60
1/2	9.4	.15	5-60
3 1/2 x 3 x 1/4	5.4	.20	5-60
5/16	6.6	.20	5-60
3/8	7.9	.20	5-60
1/2	10.2	.20	5-60
3 1/2 x 3 1/2 x 1/4	5.8	.15	5-60
5/16	7.2	.15	5-60
3/8	8.5	.15	5-60
7/16	9.8	.15	N.Y. 5-60
1/2	11.1	.15	5-60
4 x3 x1/4	5.8	.45	5-60
5/16	7.2	.20	5-60
3/8	8.5	.20	5-60
7/16	9.8	.20	N.Y. 5-60
1/2	11.1	.20	5-60
5/8	13.6	.20	N.Y. 5-60
4 x3 1/2 x 1/4	6.2	.40	N.Y. 5-60
5/16	7.7	.20	5-60
3/8	9.1	.20	5-60
7/16	10.6	.20	N.Y. 5-60
1/2	11.9	.20	5-60
4 x4 x1/4	6.6	.35	5-60
5/16	8.2	.20	5-60
3/8	9.8	.20	5-60
7/16	11.3	.20	N.Y. 5-60
1/2	12.8	.20	5-60
5/8	15.7	.20	5-60
3/4	18.5	.20	5-60
5 x3 x1/4	6.6	.40	N.Y. 5-60
5/16	8.2	.20	5-60
3/8	9.8	.20	5-60
7/16	11.3	.20	N.Y. 5-40
1/2	12.8	.20	5-60
5 x3 1/2 x 5/16	8.7	.25	5-60
3/8	10.4	.25	5-60
7/16	12.0	.25	N.Y. 5-40

(Continued)

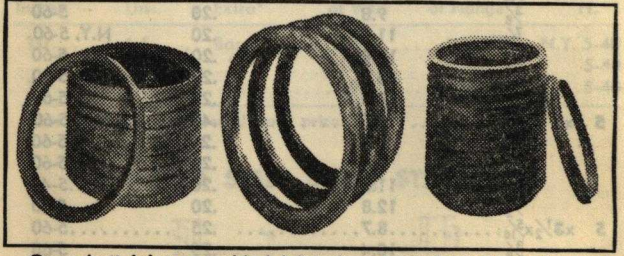
5' or longer cut without charge. Under 5', see charges on page 225.

ANGLES—STRUCTURAL

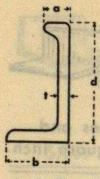
A.S.T.M.—A7-49T for bridges and buildings.
Tensile strength 60,000 to 72,000 lbs. per square inch.

Size in Inches	Weight per Ft., Lbs.	Size Extra	Stock Lengths, Ft.
(Continued)			
5 x3½x½	13.6	.25	5-60
5/8	16.8	.25	5-60
¾	19.8	.25	Chgo. 5-60
5 x5 x⅜	12.3	.35	5-60
½	16.2	.35	5-60
5/8	20.0	.35	5-60
¾	23.6	.35	5-60
6 x3½x5/16	9.8	.35	N.Y. 5-60
⅜	11.7	.35	5-60
½	15.3	.35	5-60
6 x4 x5/16	10.3	.35	5-60
⅜	12.3	.30	5-60
7/16	14.3	.30	N.Y.5-40
½	16.2	.30	5-60
5/8	20.0	.30	5-60
¾	23.6	.30	5-60
⅞	27.2	.30	Chgo. 5-60
6 x6 x⅜	14.9	.25	5-60
7/16	17.2	.25	N.Y.5-40
½	19.6	.25	5-60
5/8	24.2	.25	5-60
¾	28.7	.25	5-60
⅞	33.1	.25	N.Y. 5-60
1	37.4	.25	N.Y. 5-60
7 x4 x⅜	13.6	.30	5-60
7/16	15.8	.30	N.Y.5-40
½	17.9	.30	5-60
5/8	22.1	.30	N.Y. 5-60
¾	26.2	.30	Det.5-60
8 x4 x½	19.6	.30	5-60
5/8	24.2	.30	N.Y. 5-40
8 x6 x½	23.0	.30	5-60
5/8	28.5	.30	N.Y. 5-60
¾	33.8	.30	5-60
1	44.2	.30	Chgo. 5-40
8 x8 x½	26.4	.25	5-60
5/8	32.7	.25	N.Y. 5-60
¾	38.9	.25	5-60
⅞	45.0	.25	N.Y. 5-40
1	51.0	.25	N.Y. 5-60

ROLLED RINGS



Open butt joint or welded joint rings, rolled leg in or leg out, can be furnished promptly from our large and complete stock of angles. We can also supply rings which are rolled from bars, tees, channels, standard beams and rails. Send us the specifications for your job and we will be glad to quote prices and give complete information.

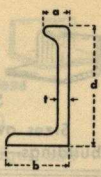


BULB ANGLES

In our New York Plant

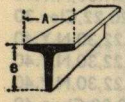
A.S.T.M.—A7-49T

for bridges and buildings.



Tensile strength 60,000 to 72,000 lbs. per square inch.
Inspected by the American Bureau of Shipping

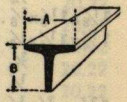
Size in Inches				Wt. per Ft., Lbs.	Size Extra	Stock Lgths., Ft.
Depth d	Flange b	Thickness t	Bulb a			
6	3½	0.4	1 3/16	13.9	.40	5-60
7	3½	0.44	1 3/8	17.1	.40	5-60
8	3½	0.46	1½	20.0	.30	5-60
9	3½	0.44	1 5/8	21.6	.30	5-60
10	3½	0.64	1 15/16	32.3	.30	5-60



TEES—STRUCTURAL

A.S.T.M.—A7-49T

for bridges and buildings.



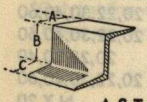
Tensile strength 60,000 to 72,000 lbs. per square inch.
Specify tees by flange first, then stem and thickness.

A Flange, Inches	B Stem, Inches	Stem Thickness, Inches	Weight per Ft., Lbs.	Size Extra	Stock Lengths, Ft.
3	2½	5/16	6.1	1.20	5-60
3	3	5/16	6.7	1.05	5-60
		3/8	7.8	1.00	5-60
4	2½	3/8	8.5	.80	5-60
4	3	3/8	9.2	.95	5-60
4	4	½	13.5	.75	5-60
5	3	3/8	11.5	.95	Phil. 5-60
5	3½	½	13.6	.95	5-60

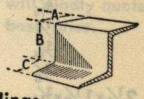
5′ or longer cut without charge. Under 5′, see charges on page 225.

SPECIAL TEES—STRUCTURAL

Flame cut from Structural I-Beams and Wide Flange Structural and H-Sections 4" or greater in depth. Order in pairs to avoid waste.



ZEES—STRUCTURAL



A.S.T.M.—A7-49T for bridges and buildings.

Tensile strength 60,000 to 72,000 lbs. per square inch.

A Flange, Inches	B Depth, Inches	C Flange, Inches	Thickness in Inches	Weight per Ft., Lbs.	Size Extra	Stock Lengths, Ft.
2 11/16	3	2 11/16	¼	6.7	.50	5-60
2 11/16	3	2 11/16	3/8	9.8	.50	5-60
2 11/16	3	2 11/16	½	12.6	.50	N.Y. 5-60
3 1/16	4	3 1/16	¼	8.2	.45	5-60
3 1/8	4 1/16	3 1/8	5/16	10.3	.45	N.Y. 5-40
3 1/8	4 1/16	3 1/8	½	15.9	.45	N.Y. 5-40
3 3/16	4 1/8	3 3/16	3/8	12.5	.45	N.Y. 5-60
3 1/4	5	3 1/4	5/16	11.6	.40	5-60
3 1/4	5	3 1/4	½	17.9	.40	N.Y. 5-60
3 5/16	5 1/16	3 5/16	3/8	14.0	.40	N.Y. 5-60
3 1/2	6	3 1/2	3/8	15.7	.40	5-60
3 5/8	6 1/8	3 5/8	½	21.1	.40	5-60

5′ or longer cut without charge. Under 5′, see charges on page 225.

ANGLES—BAR SIZES

Hot Rolled—Open Hearth

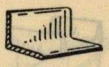
Sizes to and incl. 2 x 2 x 1/8"—AISI C1020.

Sizes over 2 x 2 x 1/8"—A.S.T.M.—A7-49T for bridges and buildings—tensile strength 60,000 to 72,000 lbs. per square inch.

Size in Inches	Weight, Lbs., Per Ft.	Weight, Lbs., Of 20' Bar	Size Extra	Stock Lengths, Ft.
1/2 x 1/2 x 1/8	.38	7.60	2.20	20,22
5/8 x 5/8 x 1/8	.48	9.60	1.60	20,22
3/4 x 3/4 x 1/8	.59	11.80	1.20	20,22
7/8 x 7/8 x 1/8	.70	14.00	1.00	20,22
1 x 5/8 x 1/8	.64	12.80	1.20	20,22
1 x 3/4 x 1/8	.70	14.00	1.00	20
1 x1 x 1/8	.80	16.00	.80	20,22,30,N.Y.40
3/16	1.16	23.20	.75	20,22,30,N.Y.40
1/4	1.49	29.80	.75	22,Buff.30,N.Y.40
1 1/8 x 1 1/8 x 1/8	.90	18.00	.80	20,22,Clev.30
1 1/4 x 1 1/4 x 1/8	1.01	20.20	.80	20,22,30,N.Y.40
3/16	1.48	29.60	.75	20,22,30,N.Y.40
1/4	1.92	38.40	.75	20,22,30,N.Y.40
1 3/8 x 7/8 x 1/8	.91	18.20	1.00	20,22,Chgo.40
3/16	1.32	26.40	.90	20,22
1 1/2 x 1 1/4 x 3/16	1.64	32.80	.65	20,22
1 1/2 x 1 1/2 x 1/8	1.23	24.60	.65	20,22,30,40
3/16	1.80	36.00	.50	20,22,30,N.Y.40
1/4	2.34	46.80	.50	20,22,30,N.Y.40
5/16	2.86	57.20	.50	22
3/8	3.35	67.00	.50	22
1 3/4 x 1 1/4 x 1/8	1.23	24.60	.75	N.Y.20
1 3/4 x 1 3/4 x 1/8	1.44	28.80	.65	20,22,Clev.30,Chgo.40
3/16	2.12	42.40	.50	20,22,30,N.Y.40
1/4	2.77	55.40	.50	20,22,30,40
5/16	3.39	67.80	.50	22
3/8	3.99	79.80	.50	22
2 x1 1/4 x 3/16	1.96	39.20	.65	20,22,30,40
1/4	2.55	51.00	.65	20,22,40
2 x1 1/2 x 1/8	1.44	28.80	.65	20,22,30,N.Y.40
3/16	2.12	42.40	.55	20,22,30,40
1/4	2.77	55.40	.55	20,22,30,40
2 x2 x 1/8	1.65	33.00	.65	20,22,30,Cinc.40
3/16	2.44	48.80	.50	20,22,30,40,60
1/4	3.19	63.80	.50	20,22,30,40,60
5/16	3.92	78.40	.50	20,22,30,40
3/8	4.70	94.00	.50	20,22,30,40,60
2 1/4 x 1 1/2 x 3/16	2.28	45.60	.55	N.Y.20
1/4	2.98	59.60	.55	20,22
2 1/2 x 1 1/2 x 3/16	2.44	48.80	.55	20,22,30,40
1/4	3.19	63.80	.55	20,22,30,40
5/16	3.92	78.40	.55	20,22
2 1/2 x2 x 3/16	2.75	55.00	.50	20,22,30,40
1/4	3.62	72.40	.50	20,22,30,40,60
5/16	4.50	90.00	.50	20,22,30,40
3/8	5.30	106.00	.50	20,22,40
1/2	6.80	113.60	.50	22,40
2 1/2 x2 1/2 x 3/16	3.07	61.40	.50	20,22,30,40,60
1/4	4.10	82.00	.50	20,22,30,40,60
5/16	5.00	100.00	.50	20,22,30,40,60
3/8	5.90	118.00	.50	20,22,30,40
1/2	7.70	154.00	.50	20,30,40,60
3 x2 x 3/16 }	For these, and all larger sizes, see Angles, Structural on page 11.			
3 x3 x 3/16 }				

Cutting charges on page 225.

GALVANIZED ANGLES



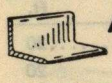
Hot Rolled—Open Hearth—Hot Dip Process

Sizes to and incl. 2 x 2 x ⅛"—AISI C1020.

Sizes over 2 x 2 x ⅛"—A.S.T.M.—A7-49T for bridges and buildings—tensile strength 60,000 to 72,000 lbs. per square inch.

Size in Inches	Approx. Weight, Lbs. Per Ft.	Approx. Weight, Lbs. Of 20' Bar	Size Extra*	Stock Lengths, Ft.
½x ½x⅛	.40	8.00	2.20	20,22
⅝x ⅝x⅛	.50	10.00	1.60	20,22
¾x ¾x⅛	.62	12.40	1.20	20,22
⅞x ⅞x⅛	.74	14.80	1.00	20,22
1 x ⅝x⅛	.67	13.40	1.20	20,22
1 x1 x⅛	.84	16.80	.80	20,22
3/16	1.22	24.40	.75	20,22
¼	1.56	31.20	.75	20,22
1¼x1¼x⅛	1.06	21.20	.80	20,22
3/16	1.55	31.00	.75	20,22
¼	2.02	40.40	.75	20,22
1⅜x ⅞x⅛	.96	19.20	1.00	20,22
1½x1½x⅛	1.29	25.80	.65	20,22
3/16	1.89	37.80	.50	20,22
¼	2.46	49.20	.50	20,22
1¾x1¾x⅛	1.51	30.20	.65	20,22
3/16	2.23	44.60	.50	20,22
¼	2.91	58.20	.50	20,22
2 x1¼x3/16	2.06	41.20	.65	20,22
2 x1½x⅛	1.51	30.20	.65	20,22
3/16	2.23	44.60	.55	20,22
2 x2 x⅛	1.73	34.60	.65	20,22
3/16	2.56	51.20	.50	20,22
¼	3.35	67.00	.50	20,22
2½x2 x3/16	2.89	57.80	.50	20,22
2½x2½x3/16	3.22	64.40	.50	20,22
¼	4.31	86.20	.50	20,22
†3 x2 x¼	4.31	86.20	Base	20
†3 x3 x3/16	3.90	78.00	.25	20
†¼	5.15	103.00	Base	20

*Galvanizing charges vary and are not included. We will gladly quote
†These are structural sizes, subject to the structural base price.



ANGLES—PICKLED AND OILED

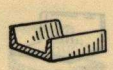
AISI C1020

HOT ROLLED—OPEN HEARTH

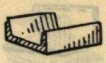
Pickled and oiled angles may be handled in all standard sections listed on pages 11, 12 and 14. We will be happy to quote prices on application.

ANGLES—INLAND HI-STEEL

See Hi-Steel Section Page 66



CHANNELS—BAR SIZES



AISI C1020

Hot Rolled—Open Hearth

Size in Inches	Weight, Lbs., Per Ft.	Weight, Lbs., Of 20' Bar	Size & Shape Extra	Stock Lengths, Ft.
For larger sizes see Channels—Structural Sizes, on page 9.				
¾ x 5/16 x 1/8	.50	10.00	1.40	22
¾ x 3/8 x No. 15	.40	8.00	2.00	20
¾ x 3/8 x 1/8	.54	10.80	1.25	22
⅞ x 3/8 x 1/8	.61	12.20	1.25	22
⅞ x 7/16 x 1/8	.69	13.80	1.25	22
1 x 3/8 x 1/8	.68	13.60	1.00	22
1 x ½ x 1/8	.80	16.00	1.00	22
1⅛ x 5/16 x 3/16	1.16	23.20	1.15	N.Y. 20
1¼ x ½ x 1/8	1.00	20.00	1.00	22
1½ x ½ x 1/8	1.04	20.80	1.00	22
1½ x 5/16 x 3/16	1.36	27.20	1.00	22
1½ x 5/8 x 3/16	1.47	29.40	1.00	22
1½ x ¾ x 1/8	1.17	23.40	1.00	22
1½ x 1½ x 3/16	2.65	53.00	1.65	22
1¾ x ½ x 3/16	1.55	31.00	.60	22
2 x ½ x 1/8	1.34	26.80	.90	22
2 x 5/16 x 3/16	1.76	35.20	.60	22
2 x 5/8 x ¼	2.18	43.60	.60	22
2 x 1 x 1/8	1.78	35.60	.90	22
2 x 1 x 3/16	2.59	51.80	.60	22
2½ x 5/8 x 3/16	2.27	45.40	.60	22

GALVANIZED CHANNELS

AISI C1020

Hot Rolled—Open Hearth—Hot Dip Process

In our Chicago Plant

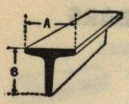
Size in Inches	Approx. Weight, Lbs., Per Ft.	Approx. Weight, Lbs., Of 20' Bar	Size & Shape Extra†	Stock Lengths, Ft.
¾ x 3/8 x 1/8	.55	11.00	1.40	20
1 x 3/8 x 1/8	.71	14.20	1.15	20
1 x ½ x 1/8	.83	16.60	1.15	20
1¼ x ½ x 1/8	.98	19.60	1.15	20
1½ x ½ x 1/8	1.09	21.80	1.15	20
1½ x ¾ x 1/8	1.23	24.60	1.15	20
2 x 1 x 3/16	2.44	48.80	.75	20

†Galvanizing charges vary and are not included. We will gladly quote.

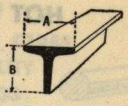
Other stock size channels can be galvanized quickly. See listing above and on page page 9.

CHANNELS—INLAND HI-STEEL

See page 66



TEES—BAR SIZES

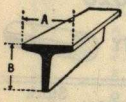


Hot Rolled—Open Hearth

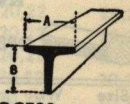
Sizes under 2 x 2 x ¼"—AISI C1020

Sizes 2 x 2 x ¼" and larger—A.S.T.M.—A7-49T for bridges and buildings—tensile strength 60,000 to 72,000 lbs. per square inch.

A Flange, Inches	B Stem, Inches	Stem Thickness, Inches	Weight, Lbs., Per Ft.	Weight, Lbs., Of 20' Bar	Size & Shape Extra	Stock Lengths, Ft.
¾	¾	⅛	.62	12.40	2.25	20,22
⅞	⅞	⅛	.73	14.60	1.90	N.Y.20,22
1	1	⅛	.85	17.00	1.75	20,22
		3/16	1.20	24.00	1.40	20,22
1¼	1¼	⅛	1.09	21.80	1.55	20
		3/16	1.72	34.40	1.25	20,22,30,40
		¼	1.93	38.60	1.25	20,22,30,40
1½	1½	3/16	1.98	39.60	1.10	20,22
		¼	2.51	50.20	1.10	20,22
1¾	1¾	3/16	2.18	43.60	1.10	20,22,30,40
		¼	3.12	62.40	1.10	20,22,40
2	1½	¼	3.12	62.40	1.50	20,22
2	2	¼	3.63	72.60	1.10	22,40
		5/16	4.35	87.00	1.10	20,22,40
2¼	2¼	¼	4.12	82.40	1.10	20,22,40
2½	2½	¼	4.60	92.00	1.10	20,40
		5/16	5.53	110.60	1.10	20,40
		⅜	6.40	128.00	1.10	20,40



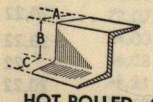
GALVANIZED TEES



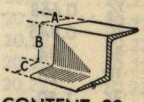
AISI C1020

HOT ROLLED—OPEN HEARTH—HOT DIP PROCESS

All sizes of regularly stocked Tees may be galvanized quickly on order. Refer to table above and on page 13. We will gladly quote prices on application.



ZEES—BAR SIZES



AISI C1020

HOT ROLLED—OPEN HEARTH—MINIMUM COPPER CONTENT .20

A Flange, Inches	B Depth, Inches	C Flange, Inches	Thickness in Inches	Weight per Ft., Lbs.	Size & Shape Extra	Stock Lengths, Ft.
1¼	1¾	1¾	3/16	2.79	1.60	40
1¼	1¾	2⅛	7/32	3.49	1.60	20
1¾	1¾	1¾	3/16	3.16	1.40	Chgo.40

HOT ROLLED CARBON STEEL BARS

QUALITY CLASSIFICATIONS

Merchant Bar Quality

Merchant Bar Quality is a standard steel widely used for general production and repair work, bracing, machine parts, welding jobs and other miscellaneous applications. It is not particularly recommended for forging, heat treating or complicated machine operations.

In the production of Merchant Bar Quality, sufficient discard is made from each ingot to obtain freedom from injurious piping. Major surface defects are removed from blooms and billets before they are rolled into bars.

Special Bar Quality

Special Bar Quality is specified for purposes for which Merchant Bar Quality is not suitable. It may be used for applications involing hammer forging, heat treating, cold drawing, turning and other similar fabricating operations. Such applications usually require bars made under special manufacturing control of chemical composition, surface preparation, heating, rolling, cooling, etc.

In the production of Special Bar Quality, sufficient discard is made from each ingot to obtain freedom from injurious piping and harmful segregation. To minimize surface defects, blooms and billets are carefully inspected and prepared by chipping, scarfing, grinding or other means before they are rolled into bars.

ROUNDS HOT ROLLED AISI C1020

OPEN HEARTH—MERCHANT BAR QUALITY

Size in Inches	Wt. per Ft., Lbs.	Size Extra	Stock Lgths., Ft.
3/16	0.094	2.40	12
1/4	0.167	1.90	12,22
5/16	0.261	1.40	12,20,22
3/8	0.376	.80	12,20,22
7/16	0.511	.65	12,20,22
1/2	0.668	.50	12,20,22
9/16	0.845	.35	12,20,22
5/8	1.04	.25	12,16,20,22
11/16	1.26	.25	20,22
3/4	1.50	.15	16,20,22
13/16	1.76	.15	20,22
7/8	2.04	.15	20,22
15/16	2.35	.15	20,22
1	2.67	.10	20,22
1 1/16	3.01	.10	20,22
1 1/8	3.38	.10	20,22
1 3/16	3.77	.10	22
1 1/4	4.17	.10	20,22
1 5/16	4.60	.10	20,22
1 3/8	5.05	.10	20,22
1 7/16	5.52	.10	20,22
1 1/2	6.01	Base	20,22
1 9/16	6.52	"	22
1 5/8	7.05	"	20,22
1 3/4	8.18	"	20,22
1 13/16	8.77	"	22
1 7/8	9.39	"	20,22
2	10.68	.15	20,22
2 1/8	12.06	.15	20,22
2 1/4	13.52	.15	20,22
2 3/8	15.06	.15	20,22
2 1/2	16.69	.15	20,22
2 5/8	18.40	.15	20,22
2 3/4	20.20	.15	20,22
2 7/8	22.07	.15	20,22

ROUNDS—HOT ROLLED

AISI C1020 AISI C1035 AISI C1045

OPEN HEARTH—SPECIAL BAR QUALITY
SUITABLE FOR HAMMER FORGINGS

AISI C1020—A low carbon general purpose machinery steel, suitable for ordinary hammer forging and case hardening. This steel may be welded.

AISI C1035—An intermediate carbon machinery steel higher in strength and hardness than low carbon steel. Used for studs, bolts, medium duty shafts, etc.

AISI C1045—A higher carbon machinery steel used where still greater tensile strength and hardness in the as-rolled condition is required. This steel can be hammer forged and will respond to heat treatment. It is also suitable for flame and induction hardening. Uses include gears, shafts, axles, bolts and studs, machinery parts, etc.

For mechanical properties, see pages 202 and 203.

	AISI C1020	AISI C1035	AISI C1045
Ident. Color	Green	Blue	Yellow
Carbon	.18 to .23	.32 to .38	.43 to .50
Max. Phos.	.040	.040	.040
Max. Sulph.	.050	.050	.050
Manganese	.30 to .60	.60 to .90	.60 to .90

Size in Inches	Wt. per Ft., Lbs.	Size & Quality Extra 1020	Size & Quality Extra 1035 1045	Stock Lengths, Feet C1020	Stock Lengths, Feet C1035	Stock Lengths, Feet C1045
3/8	0.376	1.05	1.50	20,22	N.Y. 20	
1/2	0.668	.90	1.20	20,22	20,22	20,22
9/16	0.845	..	1.05	....	Chgo. 18	....
5/8	1.04	.50	.95	20,22	20,22	20,22
3/4	1.50	.40	.85	20,22	20,22	20,22
7/8	2.04	.40	.85	20,22	20,22	20,22
1	2.67	.35	.80	20,22	20,22	20,22
1 1/8	3.38	.35	.80	20,22	20,22	20,22
1 1/4	4.17	.35	.80	20,22	20,22	20,22
1 3/8	5.05	.35	.80	20,22	20,22	20,22
1 1/2	6.01	.25	.70	20,22	20,22	20,22
1 5/8	7.05	.25	.70	20,22	20,22	20,22
1 3/4	8.18	.25	.70	20,22	20,22	20,22
1 7/8	9.39	.25	.70	20,22	20,22	20,22
2	10.68	.40	.85	20,22	20,22	20,22
2 1/8	12.06	.40	.85	20,22	20,22	20,22
2 1/4	13.52	.40	.85	20,22	20,22	20,22
2 3/8	15.06	.40	.85	20,22	20,22	20,22
2 1/2	16.69	.40	.85	20,22	20,22	20,22
2 5/8	18.40	.40	.85	20,22	20,22	20,22
2 3/4	20.20	.40	.85	20,22	20,22	20,22
2 7/8	22.07	.40	.85	20,22	20,22	20,22
3	24.03	.55	1.00	20,22	20,22	20,22
3 1/8	26.08	.55	1.00	20,22	20,22	20,22
3 1/4	28.21	.55	1.00	20,22	20,22	20,22
3 3/8	30.42	.55	1.00	20,22	20,22	20,22
3 1/2	32.71	.55	1.00	20,22	20,22	20,22
3 5/8	35.09	.55	1.00	20,22	20,22	....
3 3/4	37.55	.55	1.00	20,22	20,22	20,22
3 7/8	40.10	..	1.00	....	20,22	20,22
4	42.73	.55	1.00	20,22	20,22	20,22
4 1/8	45.44	.55	1.00	20,22	20,22	....
4 1/4	48.23	.55	1.00	20,22	20,22	20,22

(Continued)

Cutting charges on page 224.

ROUNDS—HOT ROLLED

AISI C1020 AISI C1035 AISI C1045

OPEN HEARTH — SPECIAL BAR QUALITY SUITABLE FOR HAMMER FORGINGS

Size in Inches	Wt. per Ft., Lbs.	Size & Quality Extra 1020	Size & Quality Extra 1035 1045	Stock Lengths, Feet C1020	Stock Lengths, Feet C1035	Stock Lengths, Feet C1045
(Continued)						
4 3/8	51.11	.55	1.00	20,22	20,22	20,22
4 1/2	54.08	.55	1.00	20,22	20,22	20,22
4 5/8	57.12	.60	1.05	20,22	20,22	20,22
4 3/4	60.25	.60	1.05	20,22	20,22	20,22
5	66.76	.60	1.05	20,22	20,22	20,22
5 1/8	70.14	.70	1.15	20,22	20,22	20,22
5 1/4	73.60	.70	1.15	20,22	20,22	20,22
5 1/2	80.78	.70	1.15	20,22	20,22	20,22
5 3/4	88.29	.80	1.25	20,22	20,22	20,22
5 7/8	92.17	.80	1.25	20,22	20,22	20,22
6	96.13	.80	1.25	20,22	20,22	20,22
6 1/8	100.18	.90	1.35	N.Y. 20	20,22	20,22
6 1/4	104.31	.90	1.35	20,22	20,22	20,22
6 1/2	112.82	.90	1.35	20,22	20,22	20,22
6 5/8	117.20	1.00	1.45	20,22	.....	.....
6 3/4	121.67	1.00	1.45	20,22	20,22	20,22
7	130.85	1.00	1.45	20,22	20,22	20,22
7 1/4	140.36	1.00	1.45	20,22	20,22	20,22
7 1/2	150.21	1.00	1.45	20,22	20,22	20,22
7 3/4	160.39	1.15	....	20	.....	.....
8	170.90	1.35	1.80	20,22	20,22	20,22

8 1/4" and larger—see below.

ROUNDS—FORGED

Ident. Colors: AISI C1020—Green, AISI C1045—Yellow

Forged 1/2" to 3/4" oversize to permit machining to finished sizes below. Weights are theoretical for finished sizes. AISI C1020 bars are smooth forged, AISI C1045 smooth pressed or double swaged forged.

Size in Inches	Wt. per Ft., Lbs.	Size & Quality Extra 1020	Size & Quality Extra 1045	Stock Lengths, Feet C1020	Stock Lengths, Feet C1045
8 1/4	181.75	Special	Special	12-19	12-19
8 1/2	192.93	"	"	12-19	12-19
8 3/4	204.45	"	"	12-19	12-19
9	216.30	"	"	12-19	12-19
9 1/4	228.48	"	"	12-15	....
9 1/2	241.00	"	"	12-19	12-19
9 3/4	253.85	"	"	12-19	12-19
10	267.04	"	"	12-19	12-19
10 1/2	294.41	"	"	12-19	12-19
11	323.11	"	"	12-19	12-19
11 1/2	353.15	"	"	12-19	12-19
12	384.53	"	"	12-19	12-19

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Hugh Chalm
Herbert Dra
Henry Fonta
Paul Fountai
Joseph Mora
Ernest Philli
Murray Rega
Robert Sloan
Graham Woo

Boston Sales
Michael Cole
James Cavan
Bernard Duf
Paul Mulvan
William Mur

Hartford Sal
William Eric
Winn East
Charles Frost
John Lane

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ROUNDS HOT ROLLED AISI C1117

OPEN HEARTH—SPECIAL BAR QUALITY

Identification Color: Gold

A widely used type of case hardening steel. Develops uniform, hard case and strong, tough core. Machinability about 85% of AISI B1112. Suitable for medium duty shafts, studs, pins and other machine parts.

Size in Inches	Wt. per Ft., Lbs.	Size & Quality Extra	Stock Lgths., Ft.
3/8	0.376	1.95	20
7/16	0.511	1.80	20
1/2	0.668	1.65	20
9/16	0.845	1.50	20
5/8	1.04	1.40	20
11/16	1.26	1.40	20
3/4	1.50	1.30	20
13/16	1.76	1.30	20
7/8	2.04	1.30	20
15/16	2.35	1.30	20
1	2.67	1.25	20
1 1/16	3.01	1.25	20
1 1/8	3.38	1.25	20
1 3/16	3.77	1.25	20
1 1/4	4.17	1.25	20
1 5/16	4.60	1.25	20
1 3/8	5.05	1.25	20
1 7/16	5.52	1.25	20
1 1/2	6.01	1.15	20
1 9/16	6.52	1.15	20
1 5/8	7.05	1.15	20
1 3/4	8.18	1.15	20
1 7/8	9.39	1.15	20
2	10.68	1.30	20
2 1/8	12.06	1.30	20
2 1/4	13.52	1.30	20
2 3/8	15.06	1.30	20
2 1/2	16.69	1.30	20
2 5/8	18.40	1.30	20
2 3/4	20.20	1.30	20
2 7/8	22.07	1.30	20
3	24.03	1.45	20
3 1/8	26.08	1.45	20
3 1/4	28.21	1.45	20
3 3/8	30.42	1.45	20
3 1/2	32.71	1.45	20
3 5/8	35.09	1.45	20
3 3/4	37.55	1.45	20
3 7/8	40.10	1.45	20
4	42.73	1.45	20
4 1/8	45.44	1.45	20
4 1/4	48.23	1.45	20
4 3/8	51.11	1.45	20
4 1/2	54.08	1.45	20
4 5/8	57.12	1.50	20
4 3/4	60.25	1.50	20
5	66.76	1.50	20
5 1/4	73.60	1.60	20
5 1/2	80.78	1.60	20
5 3/4	88.29	1.70	20
6	96.13	1.70	20
6 1/4	104.31	1.80	20
6 1/2	112.82	1.80	20
6 3/4	121.67	1.90	20
7	130.85	1.90	20
7 1/4	140.36	1.90	20
7 1/2	150.21	1.90	20
7 3/4	160.39	2.05	20
8	170.90	2.25	20
*8 1/4	181.75	Special	10-14
*8 1/2	192.93	"	10-14
*8 3/4	204.45	"	10-14
*9	216.30	"	10-14
*9 1/4	228.48	"	10-14
*9 1/2	241.00	"	10-14
*9 3/4	253.85	"	10-14
*10	267.04	"	10-14
*10 1/4	280.60	"	10-14
*10 1/2	294.40	"	10-14
*10 3/4	308.60	"	10-14
*11	323.10	"	10-14

*These sizes are smooth forged oversize to allow for finishing to the size shown. Weights are estimated for finished sizes.

RYCASE

(For complete listing of Rycase, see page 93)

Rycase is an open hearth, low carbon, free machining machinery steel. In the as rolled condition, without heat treatment, it offers a better steel due to the refinements secured by additional manganese and a special method of manufacture.

Rycase fulfills in every way the demand for a highly refined case hardening steel without sacrificing machinability. Case is hard, deep and uniform. Core is tough and ductile without being brittle. Write for descriptive bulletin.

GALVANIZED ROUNDS HOT ROLLED AISI C1020

OPEN HEARTH—HOT DIP PROCESS

Size in Inches	Approx. Wt. per Ft., Lbs.	Size Extra*	Stock Lgths., Ft.
3/16	.099	2.40	16,20
1/4	.175	1.90	16,20
5/16	.274	1.40	16,20
3/8	.395	.80	16,20
7/16	.537	.65	16,20
1/2	.701	.50	16,20
5/8	1.09	.25	16,20
3/4	1.58	.15	16,20
7/8	2.14	.15	16,20
1	2.80	.10	16,20

*Galvanizing charges vary and are not included. We will gladly quote. All stock size rounds can be galvanized quickly.

ROUNDS HOT ROLLED AISI C1141

OPEN HEARTH—SPECIAL BAR QUALITY

Identification Colors: Brown and Gold

For Strength—Free Cutting—Forging—Heat Treating Flame and Induction Hardening

Making and rolling of C1141 are carried out under close operating control. The result is a general purpose carbon manganese steel having unusually high, uniform quality. Machinability is better than that of many steels of similar analysis.

Typical applications: axles, shafts, bolts, pins, etc. having good strength and toughness, coupled with good machinability.

Size in Inches	Wt. per Ft., Lbs.	Size & Quality Extra	Stock Lgths., Ft.	Size in Inches	Wt. per Ft., Lbs.	Size & Quality Extra	Stock Lgths., Ft.
3/8	0.376	2.10	20	2 5/8	18.40	1.45	20
7/16	0.511	1.95	20	2 3/4	20.20	1.45	20
1/2	0.668	1.80	20	2 7/8	22.07	1.45	20
9/16	0.845	1.65	20	3	24.03	1.60	20
5/8	1.04	1.55	20	3 1/8	26.08	1.60	20
11/16	1.26	1.55	20	3 1/4	28.21	1.60	20
3/4	1.50	1.45	20	3 3/8	30.42	1.60	20
13/16	1.76	1.45	20	3 1/2	32.71	1.60	20
7/8	2.04	1.45	20	3 5/8	35.09	1.60	20
15/16	2.35	1.45	20	3 3/4	37.55	1.60	20
1	2.67	1.40	20	3 7/8	40.10	1.60	20
1 1/16	3.01	1.40	20	4	42.73	1.60	20
1 1/8	3.38	1.40	20	4 1/8	45.44	1.60	20
1 3/16	3.77	1.40	20	4 1/4	48.23	1.60	20
1 1/4	4.17	1.40	20	4 3/8	51.11	1.60	20
1 5/16	4.60	1.40	20	4 1/2	54.08	1.60	20
1 3/8	5.05	1.40	20	4 5/8	57.12	1.65	20
1 7/16	5.52	1.40	20	4 3/4	60.25	1.65	20
1 1/2	6.01	1.30	20	5	66.76	1.65	20
1 9/16	6.52	1.30	20	5 1/4	73.60	1.75	20
1 5/8	7.05	1.30	20	5 1/2	80.78	1.75	20
1 11/16	7.60	1.30	20	5 3/4	88.29	1.85	20
1 3/4	8.18	1.30	20	6	96.13	1.85	20
1 13/16	8.77	1.30	20	6 1/4	104.31	1.95	20
1 7/8	9.39	1.30	20	6 1/2	112.82	1.95	20
1 15/16	10.02	1.30	20	6 3/4	121.67	2.05	20
2	10.68	1.45	20	7	130.85	2.05	20
2 1/8	12.06	1.45	20	7 1/4	140.36	2.05	20
2 1/4	13.52	1.45	20	7 1/2	150.21	2.05	20
2 3/8	15.06	1.45	20	7 3/4	160.39	2.20	20
2 1/2	16.69	1.45	20	8	170.90	2.40	20

ROUNDS—FORGED—AISI C1141

OPEN HEARTH—SMOOTH FORGED

Forged 1/2" to 3/4" oversize to permit machining to finished sizes below. Weights are estimated for finished sizes.

Size in Inches	Wt. per Ft., Lbs.	Size & Quality Extra	Stock Lgths., Ft.	Size in Inches	Wt. per Ft., Lbs.	Size & Quality Extra	Stock Lgths., Ft.
8 1/4	181.70	Special	12	9 3/4	253.00	Special	12
8 1/2	192.93	"	10,14	10	267.04	"	10,14
8 3/4	204.40	"	12	10 1/4	280.60	"	10,14
9	216.30	"	10,14	10 1/2	294.41	"	10,14
9 1/4	228.50	"	12	10 3/4	308.60	"	10,14
9 1/2	241.00	"	10,14	11	323.11	"	10,14

RYTENSE AA

(For complete listing of Rytense AA, see page 97.)

A medium carbon free machining machinery steel that machines with 75% of the machinability of Bessemer screw stock B1112. Rytense AA, in the as rolled condition, has an average tensile strength in the hot rolled bar of approximately 95,000 p.s.i.

Rytense AA can be heat treated to develop higher mechanical properties. This steel lends itself readily to flame and induction hardening. Write for descriptive bulletin.

HEAT TREATED—AISI C1141 ROUNDS—HOT ROLLED

STRESS RELIEVED

OPEN HEARTH — SPECIAL BAR QUALITY

Identification Color: Aluminum

This is the same high, uniform quality carbon manganese steel described in the preceding table, that has been heat treated to typical minimum mechanical properties as shown below. Bars are machine straightened, and stress relieved to minimize warping during machining operations.

Applications include axles, shafts, bolts, pins and many others for which a reasonably low cost steel is required having greater strength, toughness and endurance than is afforded by carbon steels in the as-rolled condition.

Typical Minimum Mechanical Properties

	Tensile Strength P.S.I.	Yield Point P.S.I.	% Elong. in 2"	% Red. of Area	Approximate Brinell Hardness
3¾" Rd. & under	100,000	70,000	16	45	217/262
Over 3¾" Rd.	100,000	60,000	16	40	217/262

ROUNDS

Size in Inches	Wt. per Ft., Lbs.	Size & Quality Extra	Stock Lgths., Ft.
⅝	1.04	5.30	N.Y. 20
¾	1.50	5.20	N.Y. 20
⅞	2.04	5.20	N.Y. 20
1	2.67	5.15	N.Y. 20
1⅛	3.38	5.15	N.Y. 20
1¼	4.17	5.15	N.Y. 20
1⅜	5.05	5.15	N.Y. 20
1½	6.01	5.05	N.Y. 20
1⅝	7.05	5.05	N.Y. 20
1¾	8.18	5.05	N.Y. 20
1⅞	9.39	5.05	N.Y. 20
2	10.68	5.20	N.Y. 16
2⅛	12.06	5.20	N.Y. 16
2¼	13.52	5.20	N.Y. 16
2⅜	15.06	5.20	N.Y. 16
2½	16.69	5.20	N.Y. 16
2⅝	18.40	5.20	Cinc. 20
2¾	20.20	5.20	N.Y. 16
2⅞	22.07	5.20	Cinc. 20
3	24.03	5.35	N.Y. 16
3⅛	26.08	5.35	Cinc. 20
3¼	28.21	5.35	N.Y. 16
3⅜	30.42	5.35	Cinc. 20
3½	32.71	5.35	N.Y. 16
3⅝	35.09	5.35	Cinc. 20
3¾	37.55	5.35	N.Y. 16
3⅞	40.10	5.35	Cinc. 20
4	42.73	5.35	N.Y. 16
4⅛	45.44	5.35	Cinc. 20
4¼	48.23	5.35	Pgh. 20
4⅜	51.11	5.35	Cinc. 20
4½	54.08	5.35	N.Y. 16
4⅝	57.12	5.40	Cinc. 20
4¾	60.25	5.40	N.Y. 16
4⅞	63.46	5.40	Cinc. 20
5	66.76	5.40	N.Y. 16
5¼	73.60	5.50	N.Y. 16
5⅜	77.15	5.50	Cinc. 20
5½	80.78	5.50	N.Y. 16
5¾	88.29	5.60	Cinc. 20
6	96.13	5.60	N.Y. 16
6½	112.82	5.70	Cinc. 20
7	130.85	5.80	Cinc. 20

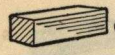
For cutting charges, see page 224.

RY-AX — HEAT TREATED

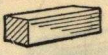
(For complete listing of Ry-Ax, see page 110.)

Ry-ax is a moderate cost, unusually tough, carbon-manganese steel, melted under special furnace control and heat treated to produce high shock and fatigue resistance. Because of the free machining qualities of Ry-ax the life of the tool is lengthened and the finish obtained is smoother than that of many heat treated alloy steels. Write for descriptive bulletin.

SQUARES HOT ROLLED AISI C1020



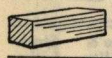
OPEN HEARTH—MERCHANT BAR QUALITY



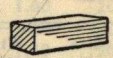
Size in Inches	Wt. per Ft., Lbs.	Size Extra	Stock Lgths., Ft.	Size in Inches	Wt. per Ft., Lbs.	Size Extra	Stock Lgths., Ft.
3/8	0.478	.80	12,20	1 1/4	5.31	.10	20,22
7/16	0.651	.65	12,22	1 3/8	6.43	.10	20,22
1/2	0.850	.50	12,20	1 1/2	7.65	Base	20,22
9/16	1.08	.35	12,22	1 5/8	8.98	"	20,22
5/8	1.33	.25	12,20-22	1 3/4	10.41	"	20,22
3/4	1.91	.15	20,22	1 7/8	11.95	"	20,22
7/8	2.60	.15	20,22	2	13.60	.15	20,22
1	3.40	.10	20,22	2 1/4	17.21	.15	20,22
1 1/8	4.30	.10	20,22	2 1/2	21.25	.15	20,22
				2 3/4	25.71	.15	20,22

SQUARES—HOT ROLLED

AISI C1018 Identification Color—Green
AISI C1020 Identification Color—Green
AISI C1045 Identification Color—Yellow



OPEN HEARTH—SPECIAL BAR QUALITY
SUITABLE FOR HAMMER FORGINGS



Size in Inches	Wt. per Ft., Lbs.	Size & Quality Extra 1018	1020	1045	Stock Lengths, Feet C1018	C1020	C1045
1/2	0.85	.95		1.90	Chgo.20		N.Y.20
5/8	1.33	.70	..	1.65	Chgo.20	..	N.Y.20
3/4	1.91	.60	..	1.55	Chgo.20	..	20
7/8	2.60	.60	..	1.55	Chgo.20	..	20
1	3.40	.55		1.50	Chgo.20		20
1 1/8	4.30	..	..	1.50	..	..	20
1 1/4	5.31	.55	..	1.50	Chgo.20	..	20
1 3/8	6.43	..	..	1.50	..	..	Phil.20
1 1/2	7.65	.45		1.40	Chgo.20		20
1 3/4	10.41	.45	..	1.40	Chgo.20	..	20
2	13.60	.60	..	1.55	Chgo.20	..	20
2 1/4	17.21	.60	..	1.55	Chgo.20	..	20
2 1/2	21.25	.60		1.55	Chgo.20		20
2 5/8	23.43	.60	..	...	Chgo.20	..	..
2 3/4	25.71	.60	..	1.55	Chgo.20	..	20
3	30.60	.75	.55	1.95	Chgo.20	20	20
3 1/4	35.91	.75	.55		Chgo.20	20	
3 1/2	41.65	.75	.55	1.95	Chgo.20	20	20
3 3/4	47.81	.75	.70	...	Chgo.20	N.Y.20	..
4	54.40	.75	.55	1.95	Chgo.20	20	20
4 1/2	68.85	.75	.55	1.95	Chgo.20	20	Phil.20
5	85.00	.80	.60	2.00	Chgo.20	20	20
6	122.40	Special			Chgo.20	20	

FLATS HOT ROLLED AISI C1020

OPEN HEARTH—MERCHANT BAR QUALITY

Size in Inches	Wt. Per Ft., Lbs.	Size Extra	Stock Lgths., Ft.
3/16 and lighter—			
See Hot Rolled Strip, page 33			
1/4x			
3/8	0.319	1.55	16,20,22
1/2	0.425	1.10	16,20,22
5/8	0.531	.90	16,20,22
3/4	0.638	.75	16,20,22
7/8	0.744	.75	16,20,22
1	0.850	.60	16,20,22
1 1/8	0.956	.60	20,22
1 1/4	1.06	.60	16,20,22
1 3/8	1.17	.60	16,20,22
1 1/2	1.28	.50	16,20,22
1 5/8	1.38	.50	20
1 3/4	1.49	.50	16,20,22
2	1.70	.50	20,22
2 1/4	1.91	.35	20,22
2 1/2	2.13	.35	20,22
2 3/4	2.34	.35	20,22
3	2.55	.35	20,22
3 1/4	2.76	.35	20,22
3 1/2	2.98	.35	20,22
3 3/4	3.19	.35	20
4	3.40	.35	20,22
4 1/4	3.61	.25	20
4 1/2	3.83	.25	20,22
5	4.25	.25	20,22
5 1/2	4.68	.25	20,22
6	5.10	.25	20,22
5/16x			
1/2	0.531	1.10	16,20,22
5/8	0.664	.90	16,20,22
3/4	0.797	.75	16,20,22
7/8	0.930	.75	16,20,22
1	1.06	.60	16,20,22
1 1/8	1.20	.60	20,22
1 1/4	1.33	.60	20,22
1 3/8	1.46	.60	20,22
1 1/2	1.59	.50	20,22
1 3/4	1.86	.50	20,22
2	2.13	.50	20,22
2 1/4	2.39	.35	20,22
2 1/2	2.66	.35	20,22
2 3/4	2.92	.35	20,22
3	3.19	.35	20,22
3 1/4	3.45	.35	Chgo. 16
3 1/2	3.72	.35	20,22
4	4.25	.35	20,22
4 1/2	4.78	.25	20,22
5	5.31	.25	20,22
5 1/2	5.84	.25	20,22
6	6.38	.25	20,22
3/8x			
1/2	0.638	.90	16,20,22
5/8	0.797	.75	16,20,22
3/4	0.956	.60	16,20,22
7/8	1.12	.60	16,20,22
1	1.28	.50	16,20,22
1 1/8	1.43	.50	16,20,22
1 1/4	1.59	.50	20,22
1 3/8	1.75	.50	20,22
1 1/2	1.91	.40	20,22
1 5/8	2.07	.40	20,22
1 3/4	2.23	.40	20,22
2	2.55	.40	20,22
2 1/4	2.87	.35	20,22
2 1/2	3.19	.35	20,22
2 3/4	3.51	.35	20,22
3	3.83	.35	20,22
3 1/4	4.14	.35	20,22
3 1/2	4.46	.35	20,22
4	5.10	.35	20,22
4 1/2	5.74	.25	20,22
5	6.38	.25	20,22
5 1/2	7.01	.25	20,22
6	7.65	.25	20,22
7/16x			
3/4	1.12	.60	20,22
7/8	1.30	.60	20,22
1	1.49	.50	16,20,22
1 1/4	1.86	.50	16,20,22
1 3/8	2.05	.50	Chgo. 16
1 1/2	2.23	.40	20,22
1 3/4	2.60	.40	20,22
2	2.98	.40	20,22
2 1/4	3.35	.35	20,22
2 1/2	3.72	.35	20,22
3	4.46	.35	20,22
3 1/2	5.21	.35	N.Y. 20
4	5.95	.35	20,22
4 1/2	6.69	.25	Chgo. 16
5	7.44	.25	Chgo. 16
6	8.93	.25	N.Y. 20

(Continued)

FLATS HOT ROLLED AISI C1020

OPEN HEARTH—MERCHANT BAR QUALITY

Size in Inches	Wt. Per Ft., Lbs.	Size Extra	Stock Lgths., Ft.
(Continued)			
1/2x			
5/8	1.06	.70	16,20,22
3/4	1.28	.60	20,22
7/8	1.49	.60	20,22
1	1.70	.50	20,22
1 1/8	1.91	.50	20,22
1 1/4	2.13	.50	20,22
1 3/8	2.34	.50	20,22
1 1/2	2.55	.35	20,22
1 5/8	2.76	.35	20,22
1 3/4	2.98	.35	20,22
2	3.40	.35	20,22
2 1/4	3.83	.30	20,22
2 1/2	4.25	.30	20,22
2 3/4	4.68	.25	20,22
3	5.10	.25	20,22
3 1/4	5.53	.25	20,22
3 1/2	5.95	.25	20,22
3 3/4	6.38	.25	20,22
4	6.80	.25	20,22
4 1/2	7.65	.20	20,22
5	8.50	.20	20,22
5 1/2	9.35	.15	20,22
6	10.20	.15	20,22
5/8x			
3/4	1.59	.60	20,22
7/8	1.86	.60	20,22
1	2.13	.50	20,22
1 1/8	2.39	.50	20,22
1 1/4	2.66	.50	20,22
1 3/8	2.92	.50	20,22
1 1/2	3.19	.35	20,22
1 5/8	3.45	.35	N.Y. 20
1 3/4	3.72	.35	20,22
2	4.25	.35	20,22
2 1/4	4.78	.30	20,22
2 1/2	5.31	.30	20,22
2 3/4	5.84	.25	20,22
3	6.38	.25	20,22
3 1/4	6.91	.25	20,22
3 1/2	7.44	.25	20,22
3 3/4	7.97	.25	22
4	8.50	.25	20,22
4 1/2	9.56	.20	20,22
5	10.63	.20	20,22
5 1/2	11.69	.15	20,22
6	12.75	.15	20,22
3/4x			
7/8	2.23	.60	20,22
1	2.55	.50	20,22
1 1/8	2.87	.50	20,22
1 1/4	3.19	.50	20,22
1 3/8	3.51	.50	Buff. 16

Size in Inches	Wt. Per Ft., Lbs.	Size Extra	Stock Lgths., Ft.
3/4x			
1 1/2	3.83	.35	20,22
1 5/8	4.14	.35	Phil. 20
1 3/4	4.46	.35	20,22
2	5.10	.35	20,22
2 1/4	5.74	.30	20,22
2 1/2	6.38	.30	20,22
2 3/4	7.01	.25	20,22
3	7.65	.25	20,22
3 1/4	8.29	.25	20,22
3 1/2	8.93	.25	20,22
4	10.20	.25	20,22
4 1/2	11.48	.20	20,22
5	12.75	.20	20,22
5 1/2	14.03	.15	20,22
6	15.30	.15	20,22
7/8x			
1	2.98	.45	20,22
1 1/8	3.35	.45	20,22
1 1/4	3.72	.45	20,22
1 3/8	4.09	.45	Chgo. 16
1 1/2	4.46	.35	20,22
1 3/4	5.21	.35	20,22
2	5.95	.35	20,22
2 1/4	6.69	.30	20,22
2 1/2	7.44	.30	20,22
2 3/4	8.18	.25	20,22
3	8.93	.25	20,22
3 1/4	9.67	.25	20,22
3 1/2	10.41	.25	20,22
4	11.90	.25	20,22
4 1/2	13.39	.20	20,22
5	14.88	.20	20,22
5 1/2	16.36	.15	20,22
6	17.85	.15	20,22
1x			
1 1/8	3.83	.45	22
1 1/4	4.25	.45	20,22
1 1/2	5.10	.35	20,22
1 3/4	5.95	.35	20,22
2	6.80	.35	20,22
2 1/4	7.65	.30	20,22
2 1/2	8.50	.30	20,22
2 3/4	9.35	.25	20,22
3	10.20	.25	20,22
3 1/4	11.05	.25	20,22
3 1/2	11.90	.25	20,22
4	13.60	.25	20,22
4 1/2	15.30	.20	20,22
5	17.00	.20	20,22
5 1/2	18.70	.15	20,22
6	20.40	.15	20,22
(Continued)			

FLATS HOT ROLLED AISI C1020

OPEN HEARTH—MERCHANT BAR QUALITY

Size in Inches	Wt. per Ft., Lbs.	Size Extra	Stock Lgths., Ft.
(Continued)			
1-1/8x			
1¾	6.69	.40	22
2	7.65	.40	20,22
2½	9.56	.30	N.Y. 20
3	11.48	.30	20,22
3¼	12.43	.25	20
3½	13.39	.25	20,22
4	15.30	.25	20,22
5	19.13	.25	20,22
6	22.95	.25	N.Y. 20
1-1/4x			
1½	6.38	.40	20,22
1¾	7.44	.40	20,22
2	8.50	.40	20,22
2¼	9.56	.30	20,22
2½	10.63	.30	20,22
2¾	11.69	.30	20,22
3	12.75	.30	20,22
3¼	13.81	.25	Chgo. 16
3½	14.88	.25	20,22
4	17.00	.25	20,22
4½	19.13	.25	20,22
5	21.25	.25	20,22
5½	23.38	.25	20,22
6	25.50	.25	20,22
1-3/8x			
4½	21.04	.25	Clev. 20
1-1/2x			
1¾	8.93	.40	20,22
2	10.20	.40	20,22
2¼	11.48	.30	20,22
2½	12.75	.30	20,22
2¾	14.03	.30	20,22
3	15.30	.30	20,22
3½	17.85	.25	20,22
4	20.40	.25	20,22
4½	22.95	.25	20,22
5	25.50	.25	20,22
5½	28.05	.25	20,22
6	30.60	.25	20,22
1-3/4x			
2	11.90	.40	20,22
2¼	13.39	.30	20
2½	14.88	.30	20,22
2¾	16.36	.30	20,22
3	17.85	.30	20,22
3¼	19.34	.25	22
3½	20.83	.25	20,22
4	23.80	.25	20,22
4½	26.78	.25	20,22
5	29.75	.25	20,22
5½	32.73	.25	20,22
6	35.70	.25	20,22
2x			
2¼	15.30	.30	N.Y. 20
2½	17.00	.30	20,22
2¾	18.70	.30	22
3	20.40	.30	20,22
3½	23.80	.25	20,22
4	27.20	.25	20,22
4½	30.60	.25	20,22
5	34.00	.25	20,22
5½	37.40	.25	22
*6	40.80	.60	20,22
2-1/4x			
3	22.95	.40	20,22
2-1/2x			
3	25.50	.40	20,22
3½	29.75	.30	20,22
4	34.00	.25	20,22
4½	38.25	.25	20,22
*5	42.50	.50	20,22
*5½	46.75	.50	22
*6	51.00	.50	20,22
3x			
3½	35.70	.30	20
*4	40.80	.50	20,22
*4½	45.90	.50	20
*5	51.00	.50	20,22
*6	61.20	.50	20,22
3-1/2x			
*4	47.60	.60	20
4x			
†6	81.60	Special	16

*These sizes are Special Bar Quality.
†4x6—AISI C1018 is Smooth Forged to size.
For sizes wider than 6", see Universal Mill and Sheared Plates on pages 38-40.

PERFORATED HANGER IRON

In our New York and Chicago Plants

No.	Widths, Inches	Gauge	Hole Size, Inches	Centers, Inches	Wt. per 100 Ft., Lbs.	Stock Lgths., Ft.
0	¾	16	¼	½	13½	10
1	⅞	16	¼	½	14½	10
2	1	14	5/16	⅝	25	10
3	1⅛	12	⅜	¾	32	5,10
4	1¼	12	⅜	¾	35	10

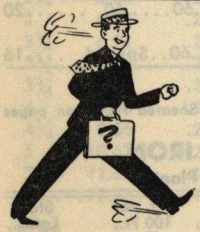
Can be furnished galvanized, when required.

FLATS HOT ROLLED AISI C1045

HIGH CARBON — OPEN HEARTH — MERCHANT BAR QUALITY

Identification Color: Yellow

Size in Inches	Wt. per Ft., Lbs.	Size & Qual. Extra	Stock Lgths., Ft.
1/4x1	0.85	2.00	20
1¼	1.06	2.00	20
1½	1.28	1.90	20
2	1.70	1.90	20
2¼	1.91	1.75	20
2½	2.13	1.75	20
3	2.55	1.75	20
4	3.40	1.75	20
5	4.25	1.65	20
6	5.10	1.65	20
5/16x1½	1.59	1.90	Chgo.
3/8x ⅝	0.80	2.15	Chgo.
1	1.28	1.90	20
1¼	1.59	1.90	20
1½	1.91	1.80	20
2	2.55	1.80	20
2¼	2.87	1.75	20
2½	3.19	1.75	20
3	3.83	1.75	20
3½	4.46	1.75	20
4	5.10	1.75	20
5	6.38	1.65	20
6	7.65	1.65	20
1/2x1	1.70	1.90	20
1¼	2.13	1.90	20
1½	2.55	1.75	20
2	3.40	1.75	20
2½	4.25	1.70	20
3	5.10	1.65	20
4	6.80	1.65	20
5	8.50	1.60	20
6	10.20	1.55	20
5/8x1½	3.19	1.75	20
2	4.25	1.75	20
2½	5.31	1.70	20
3	6.38	1.65	20
4	8.50	1.65	20
5	10.63	1.60	20
6	12.75	1.55	20
3/4x1½	3.83	1.75	20
2	5.10	1.75	20
2½	6.38	1.70	20
3	7.65	1.65	20
4	10.20	1.65	20
5	12.75	1.60	20
6	15.30	1.55	20
7/8x2	5.95	1.75	Chgo.
2½	7.44	1.70	Chgo.
3	8.93	1.65	Chgo.
4	11.90	1.65	Chgo.
6	17.85	1.55	Chgo.
1 x2	6.80	1.75	20
2½	8.50	1.70	20
3	10.20	1.65	20
4	13.60	1.65	20
5	17.00	1.60	20
6	20.40	1.55	20
1-1/4x2	8.50	1.80	20
2½	10.63	1.70	20
3	12.75	1.70	20
4	17.00	.90	N.Y.
5	21.25	.90	N.Y.
6	25.50	.90	N.Y.
1-1/2x2	10.20	1.80	20
2½	12.75	1.70	20
3	15.30	1.70	20
4	20.40	.90	N.Y.
5	25.50	.90	N.Y.
6	30.60	.90	N.Y.
2 x2½	17.00	.95	Chgo.
3	20.40	1.70	20
4	27.20	1.65	20
5	34.00	.90	N.Y.
6	40.80	.90	N.Y.
2-1/2x4	34.00	.90	N.Y.
5	42.50	1.15	N.Y.
6	51.00	1.15	N.Y.
3 x4	40.80	1.15	N.Y.
5	51.00	1.15	N.Y.
6	61.20	1.15	N.Y.



BRING

Your Steel Problems

to Ryerson

Have you been running into some of the many problems facing every steel user today? . . . What steel to specify? How best to machine, fabricate or heat treat? Or, with steel in short supply, how to make the most of what steel is available?

Bring your steel problems to Ryerson. Ryerson trained metallurgists and steel men will do their very best to help you.

GALVANIZED FLATS HOT ROLLED AISI C1020

MERCHANT BAR QUALITY

SQUARE EDGE—HOT DIP PROCESS

Size in Inches	Approx. Wt. per Ft., Lbs.	Size Extra*	Stock Lgths., Ft.
3/16" & lighter—See H.R. Strip Section			
1/4 x 3/4	.67	.75	N.Y. 20
1	.89	.60	16, 20
1 1/4	1.11	.60	16, 20
1 1/2	1.34	.50	16, 20
2	1.79	.50	16, 20
3	2.68	.35	N.Y. 20
4	3.57	.35	Chgo. 16
3/8 x 1 1/4	1.67	.50	Chgo. 16
1 1/2	2.01	.40	16, 20
2	2.68	.40	16, 20

*Galvanizing charges vary and are not included. We will gladly quote. Other stock sizes can be galvanized quickly.

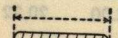
PICKLED AND OILED FLATS AISI C1020

MERCHANT BAR QUALITY

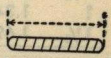
HOT ROLLED—SUITABLE FOR STAMPING

All sizes of regularly stocked flats may be pickled and oiled on order. We will gladly quote prices on application.

ROUND EDGE OVER-ALL FLATS AISI C1020



HOT ROLLED—MERCHANT BAR QUALITY



In our Chicago Plant

Size, In. Overall Meas.	Wt. per Ft., Lbs.	Size & Edge Extra	Stock Lgths., Ft.
1/2 x 2 1/2	4.12	.45	Chgo. 16

OVALS HOT ROLLED AISI C1020

OPEN HEARTH—MERCHANT BAR QUALITY

Size in Inches	Wt. per Ft., Lbs.	Size Extra	Stock Lgths., Ft.
1/2 x 1/4	.297	2.05	N.Y. 20
5/8 x 5/16	.464	1.50	N.Y. 20
7/8 x 7/16	.909	1.30	Chgo. 16

Cutting charges on page 224.

HALF OVALS HOT ROLLED AISI C1020

OPEN HEARTH—MERCHANT BAR QUALITY

Size in Inches	Wt. per Ft., Lbs.	Size Extra	Stock Lgths., Ft.	Size in Inches	Wt. per Ft., Lbs.	Size Extra	Stock Lgths., Ft.
½x⅛	.149	Spec.	12	1¼x5/16	.928	1.75	12
3/16	.284	1.60	12	⅜	1.136	1.75	12
¾x3/16	.334	2.45	12,22	1½x¼	.869	2.15	12
¼	.460	2.45	12	5/16	1.10	1.75	N.Y.20
⅞x3/16	.385	2.05	12	⅜	1.34	1.75	20,22
¼	.527	2.05	12	1¾x1/16	1.82	1.75	12,22
1 x3/16	.437	1.85	12,22	2 x⅜	1.75	1.75	N.Y.20
¼	.594	1.75	12,22	½	2.38	1.75	20,22
⅜	.939	.65	N.Y.20	2½x½	2.92	1.75	N.Y.20
1⅛x¼	.662	1.75	Chgo.20	⅝	3.71	1.75	20
1¼x3/16	.541	1.75	Phil.20	3 x⅝	4.39	1.75	Clev.16
¼	.731	1.75	N.Y.20	¾	5.35	1.75	N.Y.20

GALVANIZED HALF OVALS AISI C1020

HOT DIP PROCESS—MERCHANT BAR QUALITY

All stock sizes of half ovals can be galvanized quickly to order. We will gladly quote prices on application.

HALF ROUNDS HOT ROLLED AISI C1020

OPEN HEARTH—MERCHANT BAR QUALITY

Size in Inches	Wt. per Ft., Lbs.	Size Extra	Stock Lgths., Ft.	Size in Inches	Wt. per Ft., Lbs.	Size Extra	Stock Lgths., Ft.
⅜	.188	5.80	16	1¼	2.09	2.00	20,22
½	.334	2.80	16,22	1½	3.00	2.00	20,22
⅝	.522	2.55	16,22	1¾	4.09	2.00	20,22
¾	.751	2.25	20,22	2	5.34	2.00	20,22
⅞	1.02	2.15	22	2½	8.35	2.00	20,22
1	1.34	2.15	20,22	3	12.02	2.00	20,22
1⅛	1.69	2.15	20,22				

HEXAGONS HOT ROLLED AISI C1117

OPEN HEARTH—SPECIAL BAR QUALITY

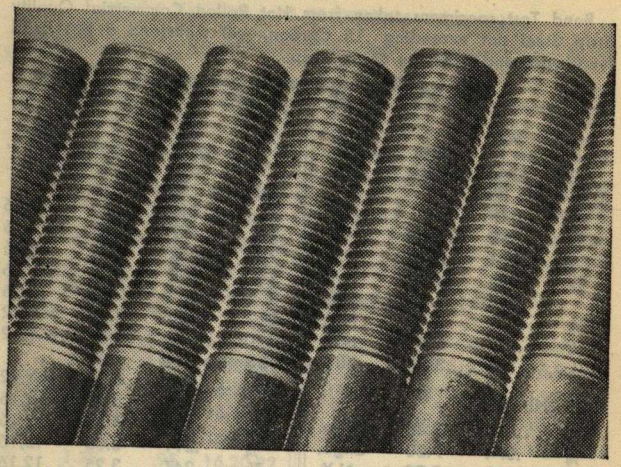
Identification Color: Gold

Size in Inches	Wt. per Ft., Lbs.	Size & Quality Extra	Stock Lgths., Ft.	Size in Inches	Wt. per Ft., Lbs.	Size & Quality Extra	Stock Lgths., Ft.
⅜	.414	1.95	20,22	1⅜	5.57	1.50	20,22
½	.737	1.90	20,22	1½	6.63	1.40	20,22
⅝	1.15	1.65	20,22	1⅝	7.78	1.40	20,22
¾	1.66	1.55	20,22	1¾	9.02	1.40	20,22
13/16	1.94	1.55	N.Y.20	1⅞	10.35	1.40	20,22
⅞	2.25	1.55	20,22	2	11.78	1.55	20,22
15/16	2.588	1.55	N.Y.20	2¼	14.91	1.55	20,22
1	2.94	1.50	20,22	2⅜	16.61	1.55	20,22
1 1/16	3.32	1.50	20,22	2½	18.40	1.55	20,22
1⅛	3.73	1.50	20,22	2¾	22.27	1.55	20,22
1¼	4.60	1.50	20,22	3	26.50	1.70	20,22

Cutting charges on page 224.

RYERSON THREADED BARS

For Mechanical Applications—Construction Purposes



We have complete facilities for threading bars ¼" to 2½" diameter with American National Form Thread and can furnish carbon steel, alloy and stainless steel bars threaded right hand or left hand to your specified length with either National Coarse (previously known as United States Standard) or National Fine (S.A.E.) threads.

Following is a partial list of products: tank rods, turnbuckle tie rods, truss rods, anchor bolts, U bolts, J bolts, eye bolts, continuous threaded bars, etc.

Allied products include tank lugs, chimney bands, ladder rungs and steps, steel plate washers, bevelled malleable washers, cast iron and wrought steel washers, nuts and turnbuckles.

Send us your requirements for threaded bars, special bolts and allied items.

Our large stocks of carbon steel, alloy and stainless steel bars assure prompt delivery to you.

Write for descriptive bulletin.

TURNBUCKLES

Steel—Weldless—Drop Forged

Diameter & Takeup Inches	Overall Length, Inches		Approx. Wt. Lbs.		List Price, Each*	
	Without Stubs	With Stubs Ext'd.	Without Stubs	With Stubs	Without Stubs	With Stubs
⅜x6	7⅛	22	.41	.86	$0.54	$0.81
½x6	7½	22	.70	1.52	.60	.90
⅝x6	7⅞	22	.89	2.17	.72	1.08
¾x6	8¼	23	1.20	3.19	1.02	1.53
⅞x6	8⅝	24	1.46	4.20	1.20	1.80
1 x6	9	25	2.27	6.19	1.50	2.25
1⅛x6	9⅜	25	2.72	7.70	1.92	2.88
1¼x6	9¾	26	3.58	9.98	2.40	3.60
1⅜x6	10½	27	4.13	12.23	2.94	4.40
1½x6	10½	27	5.25	14.95	3.84	5.76
1⅝x6	10⅞	28	5.88	17.88	4.50	6.75
1¾x6	11¼	28	7.05	20.89	5.28	7.92
2 x6	12	29	9.95	28.95	8.25	12.38
2¼x6	13½	30	18.00	43.50	12.20	18.30
2½x6	13½	31	23.25	56.75	17.04	25.56
2¾x6	13½	33	31.50	73.80	21.00	30.75
3 x6	15¾	34	39.50	91.70	27.00	39.50

Turnbuckles are furnished with or without stubs.
*Write for discounts.

HOT ROLLED STRIP

OPEN HEARTH—.15 MAXIMUM CARBON

Bend Test specimens taken from Hot Rolled Commercial Quality Strip Steel not exceeding .15 Carbon, will withstand a flat bend lengthwise and crosswise of the strip.

Coils weigh from 60 to 150 pounds each.

B.W.Ga. and Size in Inches	Wt. per Ft., Lbs.	Size Extra	Stock Lgths., Ft.
.0284 (No. 22)			
½	.048	Spec.	N.Y.
⅝	.060	10.20	N.Y.
¾	.071	5.00	N.Y.
⅞	.083	4.90	N.Y.
1	.095	3.10	N.Y.
1⅛	.107	3.10	N.Y.
1¼	.119	3.00	N.Y.
1½	.143	3.00	N.Y.
.035 (No. 20)			
½	.060	7.40	Chgo.
⅝	.074	7.20	Chgo.
¾	.089	3.70	N.Y.
⅞	.104	3.50	N.Y.
1	.120	2.55	N.Y.
1⅛	.134	2.55	N.Y.
1¼	.149	2.50	N.Y.
1½	.179	2.50	N.Y.
.042 (No. 19)			
1	.143	2.45	N.Y.
1¼	.179	2.40	N.Y.
1½	.214	2.70	Chgo.
1¾	.250	2.70	Chgo.
.049 (No. 18)			
½	.083	7.05	Chgo.
⅝	.104	6.25	N.Y.
¾	.125	3.05	N.Y.
⅞	.145	2.90	Chgo.
1	.167	2.10	N.Y.
1⅛	.187	2.10	N.Y.
1¼	.209	2.05	N.Y.
1½	.250	2.05	N.Y.
1¾	.292	2.05	N.Y.
2	.334	2.05	N.Y.
2½	.416	2.10	Chgo.
2¾	.458	2.10	Chgo.
3	.499	2.10	Chgo.
.065 (No. 16)			
⅜	.083	6.65	12,16
½	.110	6.25	12,16
⅝	.138	6.05	12,16
¾	.166	3.60	12,16
⅞	.193	3.50	12,16
1	.221	2.85	12,16
1⅛	.248	2.85	N.Y.12
1¼	.276	2.80	12,16
1½	.331	2.80	12,16
1¾	.386	2.80	12,16

B.W.Ga. and Size in Inches	Wt. per Ft., Lbs.	Size Extra	Stock Lgths., Ft.
.065 (No. 16)			
2	.442	2.80	12,16
2¼	.497	2.20	12,16
2½	.552	2.20	12,16
2¾	.607	2.20	Chgo.16
3	.662	2.20	12,16
3½	.773	2.10	N.Y.12
4	.884	2.10	N.Y.12
.083 (No. 14)			
⅜	.106	6.35	N.Y.12
½	.142	5.95	12,16
⅝	.179	5.75	12,16
¾	.211	3.35	12,16
⅞	.247	3.25	12,16
1	.282	2.60	12,16
1⅛	.318	2.60	N.Y.12
1¼	.353	2.55	12,16
1½	.424	2.55	12,16
1¾	.493	2.55	12,16
2	.564	2.55	12,16
2¼	.635	2.00	N.Y.12
2½	.706	2.00	12,16
2¾	.776	2.00	12,16
3	.846	2.00	12,16
3½	.988	1.90	12,16
4	1.13	1.90	12,16
.109 (No. 12)			
⅜	0.139	5.30	N.Y.20
½	0.185	4.90	12,16
⅝	0.232	4.70	12,16
¾	0.278	2.30	12,16
⅞	0.324	2.25	12,16
1	0.371	1.60	12,16
1⅛	0.416	1.60	N.Y.20
1¼	0.463	1.55	12,16
1⅜	0.510	1.55	Chgo.16
1½	0.556	1.55	12,16
1¾	0.648	1.55	12,16
2	0.742	1.55	12,16
2¼	0.834	1.00	12,16
2½	0.926	1.00	12,16
2¾	1.02	1.00	12,16
3	1.11	1.00	12,16
3½	1.30	.90	12,16
4	1.48	.90	12,16
.125 (⅛)			
⅜	0.159	2.75	12,20,22
½	0.213	2.35	12,20,22
⅝	0.266	2.20	12,20,22
¾	0.319	1.90	12,20,22
⅞	0.372	1.85	12,20,22

(Continued)

See page 34 for galvanized sizes in stock.

Hot Rolled Strip in coils can be straightened and cut to special lengths at a small advance in price.

HOT ROLLED STRIP

OPEN HEARTH—.15 MAXIMUM CARBON

B.W. Ga. and Size in Inches	Wt. per Ft., Lbs.	Size Extra	Stock Lgths., Ft.
(Continued)			
.125 (1/8)			
1	0.425	1.50	16,20,22
1 1/8	0.478	1.50	16,20,22
1 1/4	0.531	1.45	16,20,22
1 3/8	0.584	1.45	16,20,22
1 1/2	0.638	1.45	16,20,22
1 5/8	0.691	1.45	16
1 3/4	0.744	1.45	16,20,22
2	0.850	1.45	16,20,22
2 1/4	0.956	.95	16,20,22
2 1/2	1.06	.95	16,20,22
2 3/4	1.17	.95	16,20,22
3	1.28	.95	16,20,22
3 1/4	1.38	.85	16,20,22
3 1/2	1.49	.85	16,20,22
3 3/4	1.59	.85	N.Y. 20
4	1.70	.85	16,20,22
4 1/2	1.91	.70	16,20,22
5	2.13	.70	20,22
5 1/2	2.34	.70	20,22
6	2.55	.70	20,22
7	2.98	.65	20,22
8	3.40	.65	20,22
9	3.83	.60	20,22
10	4.25	.60	20,22
12	5.10	.60	20,22
.134 (No. 10)			
1/2	0.228	2.25	Pgh. 16
5/8	0.284	2.15	Det. 16
3/4	0.342	1.85	Pgh. 16
7/8	0.399	1.60	Det. 16
1	0.456	1.50	Pgh. 16
1 1/4	0.570	1.45	Pgh. 16
1 1/2	0.683	1.45	Pgh. 16
1 3/4	0.797	1.45	Det. 16
2	0.911	1.45	Pgh. 16
2 1/2	1.14	.95	Pgh. 16
3	1.37	.95	Det. 16
3 1/2	1.59	.85	Det. 16
4	1.82	.85	Pgh. 16
4 1/2	2.05	.70	Det. 16
5	2.28	.70	Det. 16

B.W. Ga. and Size in Inches	Wt. per Ft., Lbs.	Size Extra	Stock Lgths., Ft.
.134 (No. 10)			
6	2.73	.70	Det. 16
7	3.19	.65	Det. 32
8	3.64	.65	Det. 32
9	4.10	.60	Chgo. 16
.1875 (3/16)			
3/8	0.239	2.60	12, 16
1/2	0.319	2.25	16,20,22
5/8	0.398	2.15	16,20,22
3/4	0.478	1.85	16,20,22
7/8	0.558	1.80	16,20,22
1	0.638	1.50	16,20,22
1 1/8	0.717	1.50	16,20,22
1 1/4	0.797	1.45	16,20,22
1 3/8	0.877	1.45	16,20,22
1 1/2	0.956	1.45	16,20,22
1 3/4	1.12	1.45	16,20,22
2	1.28	1.45	16,20,22
2 1/4	1.43	.95	16,20,22
2 1/2	1.59	.95	16,20,22
2 3/4	1.75	.95	16,20,22
3	1.91	.95	16,20,22
3 1/4	2.07	.85	20,22
3 1/2	2.23	.85	20,22
4	2.55	.85	20,22
4 1/2	2.87	.70	20,22
5	3.19	.70	20,22
5 1/2	3.51	.70	20,22
6	3.83	.70	20,22
*7	4.46	.65	5-40
*8	5.10	.65	5-40
*9	5.74	.60	5-40
*10	6.38	.60	5-40
*12	7.65	.60	5-40
14	8.93		
15	9.56		
16	10.20		
18	11.48		
20	12.75		
22	14.03		

— See Hot Rolled Sheets Page 51

*.1875 (3/16") thicknesses 7" and wider, cut to any length 5'0" and over without charge.

Straight lengths average 125 lbs. to the bundle.

Hot Rolled Galvanized Strip

See Page 34

GALVANIZED STRIP

HOT ROLLED—HOT DIP PROCESS—.15 MAXIMUM CARBON

B.W.Ga. Size in Inches	Approx. Wt. per Ft., Lbs.	Size Extra*	Stock Lgths., Ft.
.065 (No. 16)x			
½	.116	6.25	12
¾	.174	3.60	12
1	.232	2.85	12
.083 (No. 14)x			
¾	.223	3.35	12
1	.296	2.60	12
1½	.445	2.55	12
2	.592	2.55	12
.109 (No. 12)x			
½	.194	4.90	12
¾	.292	2.30	12
1	.390	1.60	12
2	.779	1.55	12
.125 (⅛")x			
½	.223	2.35	20
⅝	.279	2.20	20
¾	.335	1.90	16,20
.125 (⅛")x			
⅞	.391	1.85	16,20
1	.446	1.50	16,20
1¼	.558	1.45	16,20
1½	.669	1.45	16,20
1¾	.781	1.45	20
2	.890	1.45	16,20
2½	1.11	.95	20
3	1.34	.95	20
4	1.79	.95	20
.1875 (3/16")x			
½	.335	2.25	20
¾	.502	1.85	16,20
⅞	.586	1.80	16,20
1	.670	1.50	16,20
1¼	.837	1.45	16,20
1½	1.00	1.45	16,20
1¾	1.18	1.45	20
2	1.34	1.45	16,20

1/4" & heavier—See H.R. Bar Section page 29

*Galvanizing charges vary and are not included. We will gladly quote. Other stock sizes can be galvanized quickly to order.

PICKLED AND OILED STRIP

HOT ROLLED—OPEN HEARTH—.15 MAXIMUM CARBON

Scale free. Suitable for die work and moderate stamping operations.

In Our Chicago Plant

B.W.Ga. Size in Inches	Approx. Wt. per Ft., Lbs.	Size & Quality Extra	Stock Lgths., Ft.
.065 (No. 16)x			
½	0.110	6.85	16
¾	0.166	4.20	16
⅞	0.193	4.10	16
1	0.221	3.45	16
1¼	0.276	2.60	16
1½	0.331	2.60	16
2	0.442	2.60	16
2¼	0.497	1.90	16
.083 (No. 14)x			
1	0.282	3.20	16
.125 (⅛")x			
⅜	0.159	3.95	16
½	0.213	3.55	16
⅝	0.266	3.40	16
¾	0.319	3.10	16
⅞	0.372	3.05	16
1	0.425	2.70	16
1¼	0.531	2.15	16
.125 (⅛")x			
1½	0.638	2.15	16
1¾	0.744	2.15	16
2	0.850	2.15	16
2½	1.06	1.55	16
3	1.28	1.55	16
3½	1.49	1.35	16
.1875 (3/16")x			
⅝	0.398	3.35	16
¾	0.478	3.05	16
⅞	0.558	3.00	16
1	0.638	2.70	16
1¼	0.797	2.15	16
1½	0.956	2.15	16
2	1.28	2.15	16
3	1.91	1.55	16
4	2.55	1.35	16

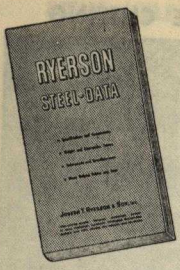
1/4" & heavier—See H.R. Bar Section page 29

All sizes of Hot Rolled Strip can be Pickled and Oiled quickly to order. We'll be happy to quote prices.

4130 AIRCRAFT STRIP

Hot Rolled, Pickled and Oiled

See Alloy Section, page 115



Need More Data on Steel?

Use the . . .

Ryerson Steel Data Book

Companion volume to your Ryerson Stock List is the Ryerson Steel Data Book. In it you will find many more tables of steel information supplementing those located in the data section of this stock list. Included are facts and figures most frequently used by those who work with steel . . . additional weight tables • specifications • tolerances • safe working loads and much other data of practical assistance to purchasing agents, engineers and shop men. If you've been looking for a book like this, call or write your Ryerson plant. You'll like the handy size of this information-filled data book on steel.

a glimpse at the index:

AISI-SAE Specifications
A.S.T.M. Specifications
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Bridge Specifications
Building Specifications
Chain Data
Channel Specifications
Cold Finished Tolerances
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Cutting Speeds and Feeds
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Firebox Steel Locomotive Specs.
Flame Cutting Procedure
Flanges, Forged
Floor Plate Safe Loads
Formulas for Weight Calculations
Gauges & Weights of Steel
Hardness Conversion Table
Hardenability Test Data
How Steel Is Made
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Locomotive Specifications
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Octagons & Ovals, Weights
Permissible Size Variations
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R.P.M. of Spindles
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Seamless Tubing Tolerances
Spark Testing of Metals
Stainless Steel Comparison Chart
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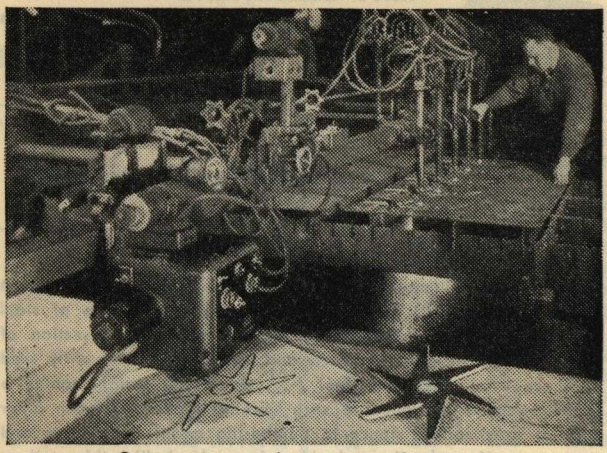
RYERSON STEEL-DATA

facts and figures for the steel user

NEW "ELECTRIC EYE" FLAME CUTTING



Greater accuray • sharp corners • faster service
exact uniformity in duplicate pieces.

The photo-electric tube, the magic mechanism that opens doors and sets off burglar alarms, has been put to work guiding our automatic torch cutting machines. The result . . . we are now producing highly intricate shapes from steel plate . . . shapes having narrow slots, slender fingers, re-entrant curves, sharp points, clean, square corners . . . all cut with full precision and accuracy.

The electronic tracer operates from the simplest of all templates . . . a black and white outline drawing, or a cut-out or inked silhouette. The "eye" follows the drawing or silhouette, and any pattern can be faithfully reproduced in steel, with sharper, squarer corners than can be cut with other types of mechanized flame cutters.

As a versatile process, flame cutting is in a class by itself . . . permitting the use of strong, tough *rolled* steel for practically every application for which an irregular or intricately shaped piece is required.

The economies resulting from using flame cut steel shapes are especially noticeable on short run production jobs, or when you need a number of different shapes for special equipment. Parts for welded assemblies, heavy frames, machine bases, etc., are quickly cut to the exact size and shape. Flame cut steel sections are frequently used instead of forgings, castings and stampings. Design changes are relatively simple and economical.

Ryerson engineers are at your service on any questions involving the practicability of flame cutting, and the application of flame-cut parts. Send sketch or blue print for cost estimate.

New "Electric Eye" Flame Cutting Bulletin sent upon request.

Typical Example of "Electric Eye" Cutting

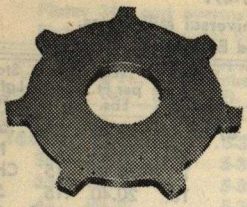
Note the clean, sharp corners of this ornamental iron railing, cut from 5/8" plate. Size, 4 1/2" x 3'1".

Flame Cutting Allegheny Stainless Steel

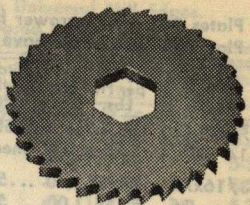
We also furnish Allegheny Stainless plates flame cut to size and shape. Please give full details of the application, corrosive conditions and fabrication involved.

Consult our Stainless Department for recommendations.

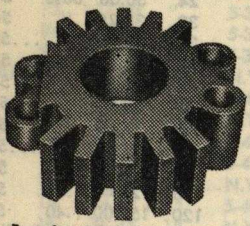
NEW "ELECTRIC EYE" FLAME CUTTING



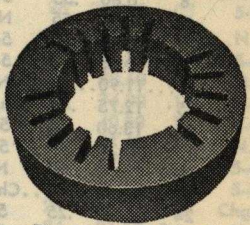
Sprocket for conveyor, cut from 1½" plate. Diameter, 26¼".



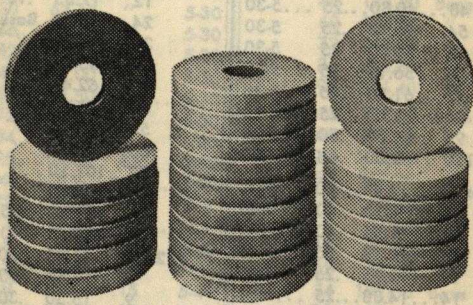
Ratchet wheel, cut from ⅞" plate. Diameter, 12½".



Part for Diesel locomotive, cut from 7" plate. Diameter, 23¼".



Diesel locomotive part, cut from 6" plate. Diameter, 25".



Rings are quickly cut, to any size and thickness.

Boom bar, cut from 1½" plate. Size, 20" x 7'8-15/16".

UNIVERSAL MILL AND SHEARED STEEL PLATES

A.S.T.M.—A7-49T

Plates 24" and narrower have Universal Mill Edges.
Plates 30" and wider have Sheared Edges.*

Size in Inches	Wt. per Ft., Lbs.	Size Extra	Stock Lgths., Ft.
3/16x7"-12", Incl.—See H.R. Strip			
14"-60", Incl.—See H.R. Sheets			
3/16x72	45.90	.40	5-30
84	53.55	1.00	5-30
96	61.20	1.10	5-30
1/4x 7	5.95	.55	5-40
8	6.80	.55	5-40
9	7.65	.55	N.Y.
10	8.50	.40	5-40
12	10.20	.40	5-40
14	11.90	.40	N.Y.
15	12.75	.40	Chgo.
16	13.60	.40	5-40
18	15.30	.40	5-40
20	17.00	.40	N.Y.
22	18.70	.40	Chgo.
24	20.40	.25	5-40
30	25.50	.25	5-30
36	30.60	.25	5-30
42	35.70	.25	5-30
48	40.80	.25	5-30
54	45.90	.25	5-30
60	51.00	.25	5-30
66	56.10	.25	5-30
72	61.20	.25	5-30
84	71.40	.25	5-20
96	81.60	.30	5-20
120	102.00	.65	5-25
5/16x 7	7.44	.40	N.Y.
8	8.50	.40	5-40
9	9.56	.40	N.Y.
10	10.63	.25	5-40
12	12.75	.25	5-40
14	14.88	.25	N.Y.
16	17.00	.25	N.Y.
18	19.13	.25	N.Y.
20	21.25	.25	N.Y.
22	23.37	.25	Chgo.
24	25.50	.10	5-40
30	31.88	.10	5-30
36	38.25	.10	5-30
42	44.63	.10	5-30
48	51.00	.10	5-30
54	57.38	.10	N.Y.
60	63.75	.10	5-30
72	76.50	.10	5-30
84	89.25	.10	5-30
96	102.00	.15	5-30
120	127.50	.50	N.Y.
3/8x 7	8.93	.30	5-40
8	10.20	.30	5-40
9	11.48	.30	N.Y.
10	12.75	.15	5-40
3/8x12	15.30	.15	5-40
14	17.85	.15	N.Y.
15	19.13	.15	Chgo.
16	20.40	.15	5-40
18	22.95	.15	5-40
20	25.50	.15	N.Y.
22	28.05	.15	Chgo.
24	30.60	Base	5-40
30	38.25	"	5-30
36	45.90	"	5-30
42	53.55	"	5-30
48	61.20	"	5-30
54	68.85	"	5-30
60	76.50	"	5-30
72	91.80	"	5-30
84	107.10	"	5-30
96	122.40	.05	5-30
120	153.00	.40	5-30
7/16x 7	10.41	.30	Chgo.
8	11.90	.30	N.Y.
10	14.88	.15	Chgo.
12	17.85	.15	Buff.
24	35.70	Base	5-40
30	44.63	"	5-30
36	53.55	"	5-30
42	62.48	"	5-30
48	71.40	"	5-30
54	80.33	"	N.Y.
60	89.25	"	5-30
72	107.10	"	5-30
84	124.95	"	5-30
96	142.80	.05	5-30
120	178.50	.40	Det.
1/2x 7	11.90	.30	5-40
8	13.60	.30	5-40
9	15.30	.30	N.Y.
10	17.00	.15	5-40
12	20.40	.15	5-40
14	23.80	.15	5-40
16	27.20	.15	5-40
18	30.60	.15	5-40
20	34.00	.15	5-40
22	37.40	.15	Chgo.
24	40.80	Base	5-40
30	51.00	"	5-30
36	61.20	"	5-30
42	71.40	"	5-30
48	81.60	"	5-30
54	91.80	"	5-30
60	102.00	"	5-30
72	122.40	"	5-30
84	142.80	"	5-30
96	163.20	.05	5-30
120	204.00	.40	5-25

(Continued)

5' or longer cut without charge. Under 5' see shearing charges page 230, flame cutting charge 231.

*Plates 30", 36" and 42" wide are sometimes available in a Universal Mill Edge, or Mill Edge (edge rolled on a strip mill) but are more commonly available in the Sheared Edge. Plates 48" and wider will always have Sheared Edges.

UNIVERSAL MILL AND SHEARED STEEL PLATES

A.S.T.M.—A7-49T

Plates 24" and narrower have Universal Mill Edges.
Plates 30" and wider have Sheared Edges.*

Size in Inches	Wt. per Ft., Lbs.	Size Extra	Stock Lgths., Ft.
(Continued)			
9/16x24	45.90	Base	5-30
30	57.38	"	5-30
36	68.85	"	5-30
42	80.33	"	5-30
48	91.80	"	5-30
54	103.28	"	N.Y.
60	114.75	"	5-30
72	137.70	"	5-30
84	160.65	"	5-30
96	183.60	.05	5-30
5/8x 7	14.88	.30	N.Y.
8	17.00	.30	5-40
9	19.13	.30	N.Y.
10	21.25	.15	5-40
12	25.50	.15	5-40
14	29.75	.15	N.Y.
16	34.00	.15	5-40
18	38.25	.15	N.Y.
20	42.50	.15	N.Y.
22	46.75	.15	Chgo.
24	51.00	Base	5-40
30	63.75	"	5-30
36	76.50	"	5-30
42	89.25	"	5-30
48	102.00	"	5-30
60	127.50	"	5-30
72	153.00	"	5-30
84	178.50	"	20
96	204.00	.05	5-20
11/16x48	112.20	Base	5-20
72	168.30	"	Clev.
3/4x 7	17.85	.30	N.Y.
8	20.40	.30	5-40
9	22.95	.30	N.Y.
10	25.50	.15	5-40
12	30.60	.15	5-40
14	35.70	.15	5-40
16	40.80	.15	5-40
18	45.90	.15	N.Y.
20	51.00	.15	N.Y.
22	56.10	.15	Chgo.
24	61.20	Base	5-40
30	76.50	"	5-30
36	91.80	.15	5-30
42	107.10	.15	5-30
48	122.40	Base	5-30
60	153.00	"	5-30
72	183.60	"	5-30
84	214.20	"	5-30
96	244.80	.05	5-30
13/16x72	198.90	Base	Clev.
7/8x 7	20.83	.30	Chgo.
8	23.80	.30	N.Y.
9	26.78	.30	St.L.
10	29.75	.15	N.Y.
12	35.70	.15	N.Y.
7/8x16	47.60	.15	Chgo.
24	71.40	Base	5-40
30	89.25	"	5-30
36	107.10	.15	5-30
48	142.80	.15	5-30
60	178.50	Base	5-30
72	214.20	"	5-30
84	249.90	"	5-30
96	285.60	.05	5-20
1 x 7	23.80	.30	N.Y.
8	27.20	.30	5-40
9	30.60	.30	N.Y.
10	34.00	.15	5-40
12	40.80	.15	5-40
14	47.60	.15	N.Y.
16	54.40	.15	5-40
18	61.20	.15	5-40
20	68.00	.15	Chgo.
24	81.60	Base	5-40
30	102.00	"	5-30
36	122.40	.15	5-30
48	163.20	Base	5-30
60	204.00	"	5-30
72	244.80	"	5-30
84	285.60	"	5-30
96	326.40	.05	5-30
1-1/8x48	183.60	Base	30
60	229.50	"	30
72	275.40	"	20
96	367.20	"	20
1-1/4x 7	29.75	.30	N.Y.
8	34.00	.30	N.Y.
10	42.50	.15	Chgo.
12	51.00	.15	N.Y.
24	102.00	Base	5-22
30	127.50	"	30
36	153.00	"	20
48	204.00	"	30
60	255.00	"	30
72	306.00	"	20
96	408.00	"	20
1-3/8x60	280.50	"	Buff.
72	336.60	"	30
96	448.80	.05	Det.
1-1/2x 7	35.70	.30	N.Y.
8	40.80	.30	N.Y.
10	51.00	.15	N.Y.
12	61.20	.15	N.Y.
24	122.40	Base	5-22
30	153.00	"	30
36	183.60	"	30
48	244.80	"	30
60	306.00	"	30
72	367.20	"	20
96	489.60	.05	20
(Continued)			

*Plates 30", 36" and 42" wide are sometimes available in a Universal Mill Edge, or Mill Edge (edge rolled on a strip mill) but are more commonly available in the Sheared Edge. Plates 48" and wider will always have Sheared Edges.

For Flame Cutting Service, See Pages 36, 37
E-Z-Cut 44
Safety Plates 46, 47
PLATES
SHEETS
HI-TENSILE STEEL
BARS C. F.
ALLOY STEEL
TOOL STEEL
STAINLESS
TUBES
BABBITT
BLDG. PRODUCTS
MACH'Y
DATA
CUTTING EXTRAS
ANTS
FICES

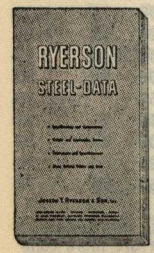
UNIVERSAL MILL AND SHEARED STEEL PLATES

A.S.T.M.—A7-49T

Plates 1⅝" and Larger—Hot Rolled, Open Hearth
.20 to .30 Carbon—Killed Steel
Plates 24" and narrower have Universal Mill Edges.
Plates 30" and wider have Sheared Edges.*

Size in Inches	Wt. per Ft. Lbs.	Size Extra	Stock Lgths., Ft.
(Continued)			
1-5/8x60	331.50	.85	Buff.
72	397.80	.85	N.Y.
96	530.40	.85	Det.
1-3/4x 8	47.60	.85	N.Y.
48	285.60	.85	30
60	357.00	.85	30
72	428.40	.85	15
96	571.20	.90	15
2x 7	47.60	.85	N.Y.
8	54.40	.85	N.Y.
9	61.20	.85	Chgo.
10	68.00	.70	Chgo.
12	81.60	.70	N.Y.
48	326.40	.85	10,20
60	408.00	.85	20
72	489.60	.85	15
96	652.80	.90	15
2-1/4x 9	68.85	.85	Chgo.
72	550.80	.85	17
96	734.40	.90	15
2-1/2x48	408.00	.85	17
60	510.00	.85	Buff.
72	612.00	.85	15
96	816.00	.90	Det.
2-3/4x72	673.20	.85	15
96	897.60	.90	Det.
3x 60	612.00	.85	10,15
72	734.40	.85	20
96	979.20	.90	Det.
3-1/4x60	663.00	1.00	15
72	795.60	1.00	N.Y.
3-1/4x96	1060.80	1.05	Det.
3-1/2x60	714.00	1.00	14
72	856.80	1.00	N.Y.
96	1142.40	1.05	Det.
3-3/4x72	918.00	1.00	14
96	1224.00	1.05	Det.
4x 60	816.00	1.00	13
72	979.20	1.00	N.Y.
96	1305.60	1.05	Det.
4-1/4x72	1040.20	1.00	Clev.
4-1/2x48	734.40	1.00	Cinc.
60	918.00	1.00	12
72	1101.60	1.00	N.Y.
5x 48	816.00	1.00	Cinc.
60	1020.00	1.00	12
72	1224.00	1.00	N.Y.
5-1/2x60	1122.00	1.00	Buff.
72	1346.40	1.00	N.Y.
6x 48	979.20	1.00	Cinc.
60	1224.00	1.00	12
72	1468.80	1.00	N.Y.
6-1/2x60	1326.00	1.00	Buff.
72	1591.20	1.00	Buff.
7x 60	1428.00	1.00	N.Y.
72	1713.60	1.00	Buff.
8x 36	979.20	1.00	N.Y.
48	1305.60	1.00	Chgo.
60	1632.00	1.00	Det.
10x 48	1632.00	1.00	N.Y.
60	2040.00	1.00	Det.

*Plates 30", 36" and 42" wide are sometimes available in a Universal Mill Edge, or Mill Edge (edge rolled on a strip mill) but are more commonly available in the Sheared Edge. Plates 48" and wider will always have Sheared Edges.



Need More Data on Steel?

Condensed in one handy book, the size of this stock list, are 256 pages of practical data on steel . . . specifications, tolerances, weights, manufacturing practices, to mention only a part. You'll find the Ryerson Steel Data Book the ideal companion to this stock list. Just phone or write for one.

HIGH CARBON STEEL PLATES

Hot Rolled—Open Hearth—.40 to .50 Carbon—Killed Steel

Identification Color: Yellow

In addition to the sizes listed below, we furnish the following widths at the stock size price:

*3/16"	— 54", 60"
1/4" to 1/2"	—30", 36", 42", 48", 54", 60", 72"
5/8" & 3/4"	—30", 36", 42", 48", 60", 72"
7/8" & 1"	—30", 36", 48", 60", 72"

Size in Inches	Wt. per Ft., Lbs.	Size & Quality Extra	Stock Lgths., Ft.
3/16x72	45.90	1.60	30
1/4x48	40.80	1.45	Chgo.
72	61.20	1.45	30
5/16x48	51.00	1.30	Chgo.
72	76.50	1.30	30
3/8x48	61.20	1.20	Chgo.
72	91.80	1.20	30
7/16x72	107.10	1.20	Chgo.
1/2x72	122.40	1.20	30
5/8x72	153.00	1.20	30
3/4x72	183.60	1.20	30
7/8x72	214.20	1.20	30
1 x72	244.80	1.20	30
1 1/8x72	275.40	1.20	N.Y.
1 1/4x72	306.00	1.20	30
1 3/8x72	336.60	1.70	Chgo.
1 1/2x72	367.20	1.70	20
1 5/8x72	397.80	1.80	Chgo.
1 3/4x48	285.60	1.80	30
72	428.40	1.80	N.Y.
2 x48	326.40	1.80	30
72	489.60	1.80	N.Y.
2 1/4x72	550.80	1.80	N.Y.
2 1/2x72	612.00	1.80	N.Y.
2 3/4x72	673.20	1.80	N.Y.
3 x72	734.40	1.80	N.Y.
3 1/4x72	795.60	1.95	Buff.
3 1/2x72	856.80	1.95	Buff.
3 3/4x72	918.00	1.95	Chgo.
4 x72	979.20	1.95	N.Y.
4 1/2x72	1101.60	1.95	Buff.
5 x72	1224.00	1.95	Buff.
5 1/2x72	1346.40	1.95	Buff.
6 x72	1468.80	1.95	Phil.
7 x60	1428.00	1.95	Chgo.
8 x48	1305.60	1.95	Phil.

*For sizes 3/16" x 24" to 48" See page 53.

COPPER ALLOY STEEL PLATES

Hot Rolled—Open Hearth—Minimum Copper Content .20

A.A.R.—M-116-(Latest)—Grade B

Tensile Strength 50,000 to 62,000 lbs. per sq. in.

Will give two to three times the life of ordinary steel plates in uses involving exposure to atmospheric corrosion.

Size in Inches	Wt. per Ft., Lbs.	Size & Quality Extra	Stock Lgths., Ft.
3/16x30 to 48—See Sheets			
3/16x60	38.25	.65	Chgo.
72	45.90	.75	30
1/4x36	30.60	.50	Buff.
60	51.00	.50	Buff.
72	61.20	.50	N.Y.
5/16x72	76.50	.35	N.Y.
3/8x72	91.80	.25	N.Y.
1/2x72	122.40	.25	N.Y.
5/8x72	153.00	.25	N.Y.
3/4x72	183.60	.25	N.Y.

We furnish **High Carbon and Copper Alloy** plates in all standard Universal Mill widths on a net weight basis. For shearing and flame cutting charges, see pages 230 and 231.

FLANGE STEEL PLATES

Hot Rolled—Open Hearth

Tensile Strength 55,000 to 65,000 lbs. per square inch

Conforms to A.S.M.E.—SA-285 Grade C

A.S.T.M.—A285 (Latest) Grade C

In addition to the sizes listed below, we furnish the following widths at the stock size price:

¼" to ½"—30", 36", 42", 54"
⅝" & ¾"—30", 36", 42"
⅞" & 1" —30", 36"

Size in Inches	Wt. per Ft., Lbs.	Size & Qual. Extra	Stock Lgths., Ft.
1/4x48	40.80	.75	Chgo.
72	61.20	.75	N.Y.
84	71.40	.75	Chgo.
96	81.60	.80	Det.
120	102.00	1.15	Chgo.
5/16x72	76.50	.60	N.Y.
84	89.25	.60	Chgo.
96	102.00	.65	Det.
120	127.50	1.00	Chgo.
3/8x48	61.20	.50	Chgo.
72	91.80	.50	N.Y.
84	107.10	.50	Chgo.
96	122.40	.55	Det.
7/16x72	107.10	.50	Chgo.
84	124.95	.50	Chgo.
120	178.50	.90	Chgo.
1/2x48	81.60	.50	Chgo.
1/2x72	122.40	.50	N.Y.
84	142.80	.50	Chgo.
96	163.20	.55	Det.
5/8x60	127.50	.50	Chgo.
72	153.00	.50	N.Y.
84	178.50	.50	Chgo.
96	204.00	.55	Det.
3/4x60	153.00	.50	Chgo.
72	183.60	.50	N.Y.
96	244.80	.55	Chgo.
7/8x72	214.20	.50	N.Y.
1 x60	204.00	.50	Chgo.
72	244.80	.50	N.Y.
96	326.40	.55	Chgo.
1-1/8x72	275.40	.50	Chgo.
1-1/4x72	306.00	.50	Chgo.
1-1/2x72	367.20	.50	Chgo.
1-3/4x72	428.40	1.35	Chgo.

A.A.R. LOCOMOTIVE FIREBOX STEEL PLATES

Hot Rolled—Open Hearth

In Our Chicago Plant

Tensile Strength 55,000 to 65,000 lbs. per square inch

Conforms to A.S.T.M.—Grade "A"—A-30-49

and A.A.R., Grade A—M-115—(Latest)

In addition to the sizes listed below, we furnish the following widths at the stock size price:

30", 36", 42", 48", 54", 60" or 72"

Size in Inches	Wt. per Ft., Lbs.	Size & Quality Extra	Stock Lgths., Ft.
5/16x96	102.00	1.05	5-30
3/8x96	122.40	.95	5-30
1/2x96	163.20	.95	5-30

We furnish Flange Steel and Locomotive Firebox plates in all standard Universal Mill widths on a net weight basis. For shearing and flame cutting charges, see pages 230 and 231.

FIREBOX STEEL PLATES

Hot Rolled—Open Hearth

Tensile Strength 55,000 to 65,000 lbs. per square inch

Conforms to A.S.M.E. SA-285 Grade C

A.S.T.M. A285 (Latest) Grade C

In our Chicago Plant or as Indicated

In addition to the sizes listed below, we furnish the following widths at the stock size price:

¼" to 9/16"—30", 36", 42", 48", 54", 60", 72"
⅝" & ¾"—30", 36", 42", 48", 60", 72"
⅞" & 1" —30", 36", 48", 60", 72"

Size in Inches	Wt. per Ft., Lbs.	Size & Qual. Extra	Stock Lgths., Ft.
1/4x60	51.00	1.00	5-30
96	81.60	1.05	5-30
5/16x60	63.75	.85	5-30
96	102.00	.90	5-30
3/8x60	76.50	.75	5-30
72	91.80	.75	5-30
96	122.40	.80	5-30
3/8x120	153.00	1.15	Det.
7/16x 96	142.80	1.15	5-30
1/2x 60	102.00	.75	5-30
96	163.20	.80	5-30
120	204.00	1.15	5-30
5/8x 96	204.00	.80	5-30

We furnish **Firebox Steel** plates in all standard Universal Mill widths on a net weight basis. For shearing and flame cutting charges, see pages 230 and 231.

PICKLED AND OILED STEEL PLATES

Hot Rolled—Open Hearth—Soft Steel

A uniform high quality plate that is smooth, clean and free from scale. Suitable for jigs, fixtures and pattern work.

Size in Inches	Wt. per Ft., Lbs.	Size & Quality Extra	Stock Lgths., Ft.
1/4x48	40.80	Special	12
5/16x48	51.00	"	12
3/8x48	61.20	"	12
1/2x48	81.60	"	12

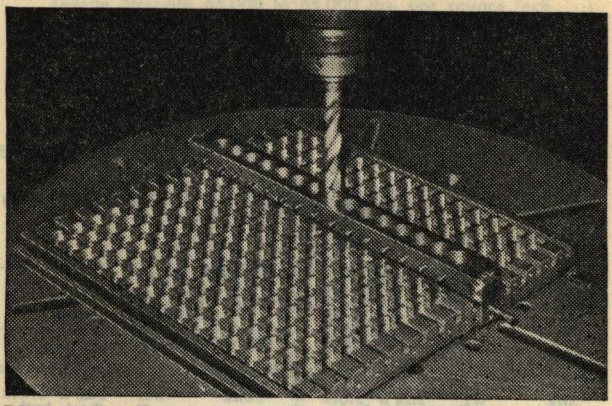
For lighter weights—see Hot Rolled, Pickled and Oiled Sheets in H.R. Sheet Section.

Cutting charges on pages 230 and 231.

E-Z-CUT* PLATES

Free Machining—Case Hardening

Identification Colors: Red and White



E-Z-Cut Plates permit higher speeds in drilling and in all other machining operations compared to similar operations on ordinary low carbon steel. The machined surface is remarkably clean and smooth.

Ryerson E-Z-Cut Plates are made to our specifications from a special high manganese steel with a controlled sulphur addition. Remarkable free machining qualities make these plates especially well suited for: die bases, jigs, plastic and rubber molds and similar applications where considerable machining is involved.

The cutting is clean, there is less friction, and tool life is lengthened. Savings in machining time amount to as much as 30% compared to ordinary steel, with approximately 50% increase in life of cutting tool.

E-Z-Cut Plates respond to all carburizing processes that are applied to other case hardening steels, attaining extreme surface hardness with even gradation of carbon from case to core. Sound, strong welds result when proper techniques and electrodes are employed.

Write for bulletin giving chemical analysis, mechanical properties and recommended practice for machining, drilling, case hardening and welding.

In addition to the sizes listed below, we furnish the following widths at the stock size price:

3/16" to 1/2"—30", 36", 42", 48", 54"
5/8" & 3/4"—30", 36", 42", 48"
7/8" & 1" —30", 36", 48"

Size in Inches	Wt. per Ft., Lbs.	Size & Quality Extra	Stock Lgths., Ft.
3/8x60	76.50	2.00	30
7/16x60	89.25	2.00	N.Y. 20
1/2x60	102.00	2.00	30
5/8x60	127.50	2.00	20
3/4x60	153.00	2.00	20
7/8x60	178.50	2.00	20
1 x60	204.00	2.00	20
1 1/8x60	229.50	2.00	20
1 1/4x60	255.00	2.00	20
1 3/8x60	280.50	2.00	20
1 1/2x60	306.00	2.00	20
1 5/8x60	345.10	2.35	20
1 3/4x58	369.85	2.35	20
1 7/8x58	382.50	2.35	20
2 x48	326.40	2.35	20
2 1/8x48	346.80	2.35	20
2 1/4x60	459.00	2.35	22
2 1/2x60	510.00	2.35	16
2 3/4x60	561.00	2.35	18
3 x60	612.00	2.35	16
3 1/4x60	663.00	2.50	15
3 1/2x60	714.00	2.50	14
3 3/4x60	765.00	2.50	13
4 x60	816.00	2.50	12
4 1/4x60	867.00	2.50	11
4 1/2x60	918.00	2.50	11
5 x60	1020.00	2.50	10
5 1/2x60	1122.00	2.50	9
6 x60	1224.00	2.50	8
7 x48	1142.40	2.50	9
8 x48	1305.60	2.50	8

We furnish **E-Z-Cut** plates in all standard Universal Mill widths on a net weight basis. For cutting charges, see pages 230 and 231.

*Trademark.

ABRASION RESISTING SHEETS & PLATES

Ryerson abrasion resisting steel is made to a special carbon-manganese specification, developed especially for applications requiring resistance to abrasive wear. It is used in making scraper blades, grain and feed mill liners and spouts, concrete mixers, conveyors, hammer mill parts, drag line equipment, coal and gravel screens and chutes, sand, gravel, cement and clay handling machinery, pug mill knives, etc.

Abrasion resisting steel will in most cases outlast ordinary steel by a big margin and in many cases it compares favorably with high priced alloy castings. The actual comparative life is of course dependent on the application, method of fabrication and whether used in the natural or heat treated condition.

Abrasion resisting sheets and plates can be machined, drilled and punched. They will also withstand a certain amount of bending and forming. To make certain fabrication jobs easier, Ryerson abrasion resisting steel is made in two analyses:

"H"—Full Hardness

Identification Colors: Red and Purple

In "H"—full hardness Ryerson abrasion resisting steel, the carbon content is high and the manganese relatively low. This gives greater wear resistance for certain applications, but fabrication is more difficult.

"M"—Medium Hardness

Identification Color: Red

In "M"—medium hardness abrasion resisting steel, the carbon content is lower and the manganese relatively higher in order to increase ductility. While this results in the sacrifice of a certain amount of wear resistance, the greater ductility is sometimes necessary for applications involving difficult fabrication.

If you will give us the details of your abrasion resisting problem we shall be glad to make recommendations on the fabrication and use of this material for your particular application.

16 ga. sheets carried in "M"—medium hardness only. All other sizes carried in stock in both "H"—full hardness and "M"—medium hardness.

SHEETS

U.S.S. Gauge and Size Inches	Est. Wt. per Sheet	Size Extra
No. 7 (3/16")		
48x192	Chgo. 480.0	.50
No. 10x36x120	Chgo. 168.8	.50
48x192	Chgo. 360.0	.50
No. 10x60x120	.....281.3	.55
60x192	Chgo. 450.0	.55
No. 16x36x 96	Chgo. 60.0	.70
48x120	N.Y. 100.0	.70
48x192	.....220.0	.70

PLATES

Size in Inches	Weight per Ft., Lbs.	Size Extra
3/16x72x240	.....45.90	..40
1/4x48x240	Phil. 40.80	.25
60x360	Chgo. 51.00	.25
72x360	61.20	.25
5/16x72x360	.....76.50	...10
3/8x72x360	.....91.80	. Base
1/2x72x360	122.40	"
†5/8x72x360	153.00	"
†3/4x60x360	N.Y. 153.00	.. "

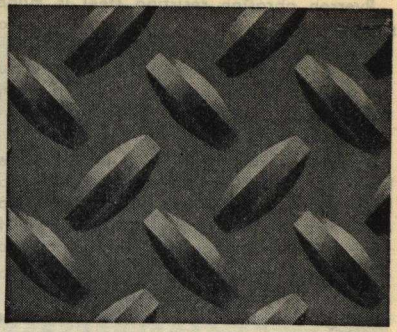
†5/8" and 3/4" plate must be flame cut to size. Lighter gauges are sheared. For shearing and flame cutting charges, see pages 230-232.

INLAND 4-WAY SAFETY PLATES

LARGE PATTERN

(½ Actual Size)

Recommended for floors that must withstand abuse and heavy loads.



Inland 4-Way Safety Plates are made from strong rolled steel. They offer maximum safety as projections center one another at right angles and give equal resistance to slip in all four directions. The pattern matches whether the plates are laid side to side or end to side resulting in easier, lower cost installation. Inland Safety plates are clean and open—they sweep and drain in all directions. Plates can be bent or formed to fit each application. They are available in two patterns.

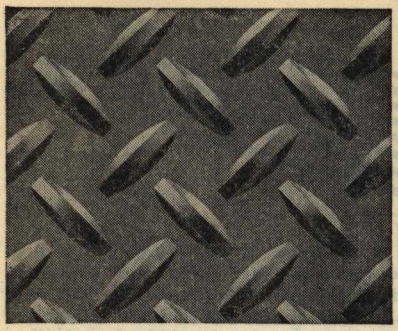
They are used for floor ramps, platforms, stairs, etc. in most every type of building and for steps, floors, walk ways, etc., in many types of equipment, trucks, etc. Write for booklet.

Large Pattern

*Size in Inches	Wt. per Square Ft., Lbs.	Size Extra	Stock Lgths., Ft.
3/16x24	8.70	.20	5-30
26	8.70	.20	5-30
28	8.70	.20	5-30
30	8.70	.20	5-30
36	8.70	.20	5-30
42	8.70	.20	5-30
48	8.70	.20	5-30
54	8.70	.20	5-30
60	8.70	.20	5-30
72	8.70	.20	5-20
1/4x24	11.25	.10	5-30
26	11.25	.10	5-30
28	11.25	.10	5-30
30	11.25	.10	5-30
36	11.25	.10	5-30
42	11.25	.10	5-30
48	11.25	.10	5-30
54	11.25	.10	5-30
60	11.25	.10	5-30
72	11.25	.10	5-30
5/16x28	13.80	.10	5-30
5/16x30	13.80	.10	5-30
36	13.80	.10	5-30
42	13.80	.10	5-30
48	13.80	.10	5-30
54	13.80	.10	5-30
60	13.80	.10	5-30
72	13.80	.10	5-30
3/8x28	16.35	Base	5-30
30	16.35	"	5-30
36	16.35	"	5-30
42	16.35	"	5-30
48	16.35	"	5-30
54	16.35	"	5-30
60	16.35	"	5-30
72	16.35	"	5-30
1/2x36	21.45	"	20
42	21.45	"	5-30
48	21.45	"	5-30
54	21.45	"	5-30
60	21.45	"	5-30
72	21.45	"	5-30

*Thickness exclusive of projections.

INLAND 4-WAY SAFETY PLATES



MEDIUM PATTERN
(½ Actual Size)

A popular and versatile pattern for use in your plant or on your product.

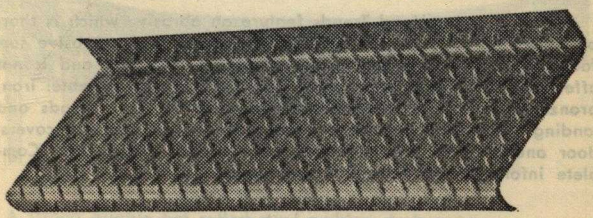
Medium Pattern

*Nom. Ga. & Size, Inches	Wt. Sq. Ft., Lbs.	Size Extra	Lgths., Ft.
No. 16x24	3.00	4.00	8
30	3.00	4.00	8
36	3.00	4.00	8,12
No. 14x30	3.75	3.00	8,10,12
36	3.75	3.00	8,10,12
42	3.75	3.00	12
48	3.75	3.00	8,12,16

*Nom. Ga. & Size, Inches	Wt. Sq. Ft., Lbs.	Size Extra	Lgths., Ft.
No. 12x24	5.25	2.00	12
36	5.25	2.00	8,10,12
48	5.25	2.00	12
60	5.25	2.00	N.Y. 20
1/8x30	6.15	1.00	8,10,12,20
36	6.15	1.00	8,10,12,20
48	6.15	1.00	8,10,12,20

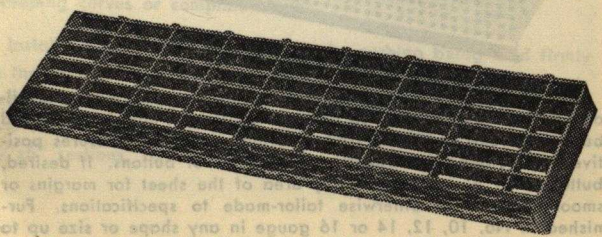
*Thickness exclusive of projections.

STEEL STAIR TREADS AND PLATFORMS



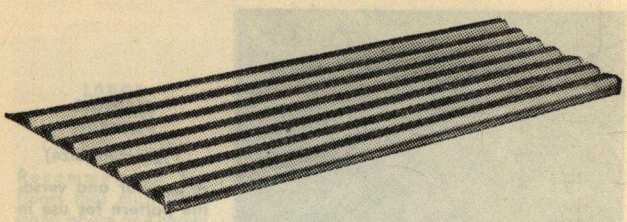
Treads and landings, made from Inland 4-Way Safety Plates give additional safety, rigidity and long life. Treads are formed with a nosing to give a neat appearance. They are furnished either with or without a short riser. All treads are made to specification for use in either straight or winding stairways.

TRI-LOCK STAIR TREAD



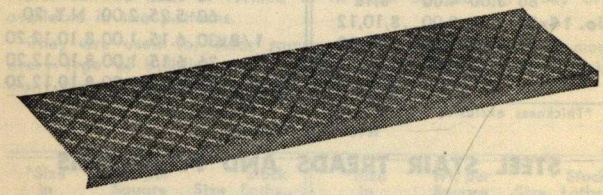
Tri-Lock Grating and Tread listed in detail on pages 196 and 197.

MASON RIBBED TYPE SAFETY TREADS



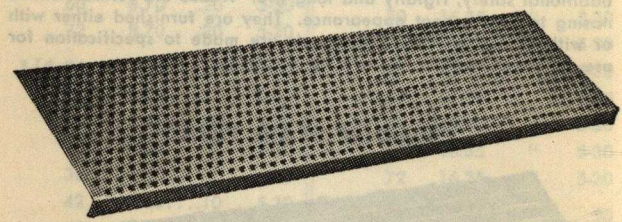
Mason Ribbed Type Safety Treads combine a high degree of safety with handsome appearance. These treads are made from extruded aluminum and bronze with an abrasive filler and offer high non-slip qualities. Treads are drilled and countersunk for screws. Furnished with or without nosing in widths from 2½" to 6" and can be extended to any desired width. Anchors and screws will be furnished when desired. Send for complete descriptive bulletin. Used for stair treads, stair landings, stair nosings, ramps, ladder treads, machinery mats, etc.

MASON ABRASIVE METAL SAFETY TREADS



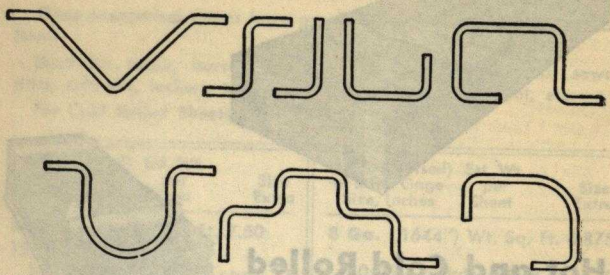
Mason Abrasive Metal Treads feature an abrasive which is thoroughly imbedded in the surface of the metal. This abrasive surface effectively prevents slipping whether wet or dry and is not affected by oily conditions. Four base metals are available: iron, bronze, aluminum or nickel. They are used for stair treads and landings, platforms and floor plates, trench and manhole covers, door and elevator saddles, spiral stair treads, ramps, etc. Complete information will be sent on request.

MORTON KASS SAFETY TREADS



These treads are made from copper bearing steel and are available with buttons perforated or unperforated. A hole in the raised button prevents the tread from wearing smooth and assures positive grip. Hand-truck wheels ride the tops of buttons. If desired, buttons may be omitted, in any area of the sheet for margins or smooth flanges or otherwise tailor-made to specifications. Furnished in No. 10, 12, 14 or 16 gauge in any shape or size up to 36"x120". Send for descriptive bulletin.

SPECIAL FORMED PARTS



Many manufacturers are saving time, trouble and money by supplementing their own production facilities with quick Ryerson service on special sections formed from the wide range of steel carried in Ryerson stock. Write for details.

STEEL CIRCLES AND RINGS

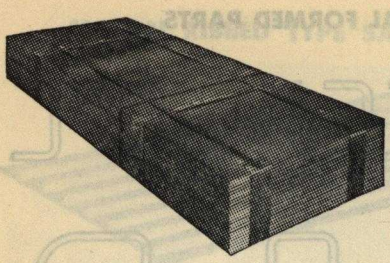
Circles and rings cut from any sheets or plates listed in this book. Rough forged and rough turned rings also furnished.

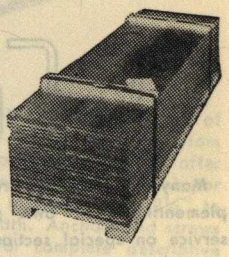
RYERSON "ESTATE" CURBING

A strong pliable hot rolled steel curbing designed to emphasize neatness and simplicity. Retaining lines are smooth and positive, offering advantages over concrete curbing which is subject to cracking and breaking, and tends to emphasize road or walk rather than lawn or garden.

Connecting joints are designed to accommodate inclines as well as level surfaces. Flexibility allows landscapers to neatly edge sweeping curves or complete circles.

Installation is simple and speedy, the curbing being held firmly in the ground by 18" tapered steel stakes driven through pockets pressed into the side of the curbing at intervals of approximately two feet. Furnished painted with extra heavy green paint in 1/4"x5" sections, 16 feet long. Write for illustrated bulletin.





Hot and Cold Rolled SHEETS . . .

Cut to Your Specifications Quickly—Accurately

Many manufacturers have need for sheets of varying kinds and gauges, cut to exact size, ready for use. To meet this demand, we have built up a special department for handling this special cutting.

Though our stocks are out of balance from a gauge and size standpoint, we have a good tonnage of hot and cold rolled sheets. The department is equipped with modern, accurate shears so that we are able to cut all gauges and most every shape and size to meet the varying demands of industry. The sheets are cut to very close tolerances and are all ready for use.

We urge you to take advantage of this cut-to-size-and-shape service, which is now saving time and money for so many of our good customers.

H. R. Shts. 51-56
C. R. Shts. 57, 58
Special Sheets 59-64

SHEETS—HOT ROLLED

Prime Quality—Open Hearth—Low Carbon

These economical sheets have good workability for forming operations.

Used for tanks, barrels, pails, various farm implements, saws, discs, cabinets, lockers, truck bodies, household equipment, etc.

For Cold Rolled Sheets see pages 57, 58.

U.S.S. (Revised) or Mfrs. Gage Size, Inches	Est. Wt. per Sheet	Size Extra
7 Ga. (3/16") Wt. Sq. Ft. 7.50		
12" and narrower—		
See Hot Rolled Strip page 33		
*14x192	140.0	.55
*15x192	150.0	.50
*16x192	160.0	.50
*18x192	180.0	.50
*20x192	200.0	.40
*22x192	220.0	.50
*24x 96	120.0	.50
*24x120	150.0	.50
*24x192	240.0	.50
*28x 96	140.0	.50
*28x120	175.0	.50
*28x192	280.0	.50
*30x 96	150.0	.50
*30x108	168.8	.50
*30x120	187.5	.50
*30x144	225.0	.50
*30x192	300.0	.50
*30x240	375.0	.50
*36x 96	180.0	.50
*36x108	202.5	.50
*36x120	225.0	.50
*36x144	270.0	.50
*36x192	360.0	.50
*36x240	450.0	.50
*40x 96	200.0	.50
*40x120	250.0	.50
*40x192	400.0	.50
*40x240	500.0	.50
*42x 96	210.0	.50
*42x108	236.3	.50
*42x120	262.5	.50
*42x144	315.0	.50
*42x192	420.0	.50
*42x240	525.0	.50
*48x 84	210.0	.50
*48x 96	240.0	.50
*48x108	270.0	.50
*48x120	300.0	.50
*48x144	360.0	.50
*48x192	480.0	.50
*48x240	300.0	.50
*54x192	540.0	.50
*60x192	600.0	.50
Over 60"—See Plate Section page 38		

U.S.S. (Revised) or Mfrs. Gage Size, Inches	Est. Wt. per Sheet	Size Extra
8 Ga. (.1644") Wt. Sq. Ft. 6.875		
30x120	Buff. 171.9	.50
30x192	Buff. 275.0	.50
36x 96	Chgo. 165.0	.50
36x120	Buff. 206.3	.50
36x192	N.Y. 330.0	.50
42x120	Buff. 240.6	.50
42x192	N.Y. 385.0	.50
48x 96	Chgo. 220.0	.50
48x120	Buff. 275.0	.50
48x192	N.Y. 440.0	.50
54x120	Buff. 309.4	.55
54x192	N.Y. 495.0	.55
60x120	Buff. 343.8	.55
60x192	N.Y. 550.0	.55
72x120	Buff. 412.5	.60
72x144	Cinc. 495.0	.60
72x192	N.Y. 660.0	.60
10 Ga. (.1345") Wt. Sq. Ft. 5.625		
24x 96	90.0	.50
24x120	112.5	.50
30x 84	98.4	.50
30x 96	112.5	.50
30x120	140.6	.50
36x 84	118.1	.50
36x 96	135.0	.50
36x120	168.8	.50
36x144	202.5	.50
36x156	Cinc. 219.4	.50
42x 84	137.8	.50
42x 96	157.5	.50
42x120	196.9	.50
42x144	236.3	.50
42x156	Det. 255.7	.50
48x 84	157.5	.50
48x 96	180.0	.50
48x120	225.0	.50
48x144	270.0	.50
48x180	337.5	.50
54x 96	202.5	.55
54x120	253.1	.55
54x144	302.8	.55
54x156	Cinc. 329.1	.55
60x 96	225.0	.55

(Continued)

*All 7 Ga. (3/16") stock widths cut to any length 5'0" or over without charge. For other cutting charges, see pages 232, 233.

All Hot Rolled Sheets have sheared edges except 7 Ga. 14" to 22" wide which have mill edges.

SHEETS—HOT ROLLED

Prime Quality—Open Hearth—Low Carbon

U.S.S. (Revised) or Mfrs. Gage Size, Inches	Est. Wt. per Sheet	Size Extra
(Continued)		
10 Ga. (.1345") Wt. Sq. Ft. 5.625		
60x108	253.1	.55
60x120	281.3	.55
60x144	337.5	.55
60x180	421.9	.55
60x192	N.Y. 450.0	.55
72x 96	270.0	.60
72x120	337.5	.60
72x144	405.0	.60
72x180	506.3	.60
72x192	540.0	.60
11 Ga. (.1196") Wt. Sq. Ft. 5.00		
30x 96	100.0	.50
30x120	125.0	.50
36x 96	120.0	.50
36x120	150.0	.50
36x144	180.0	.50
42x 96	140.0	.50
42x120	175.0	.50
42x144	210.0	.50
48x 84	140.0	.50
48x 96	160.0	.50
48x120	200.0	.50
48x144	240.0	.50
54x 96	180.0	.55
54x120	225.0	.55
54x144	270.0	.55
60x 96	200.0	.55
60x120	250.0	.55
60x144	300.0	.55
72x 96	240.0	.60
72x120	300.0	.60
72x144	360.0	.60
72x180	450.0	.60
72x192	480.0	.60
12 Ga. (.1046") Wt. Sq. Ft. 4.375		
24x 96	70.0	.50
24x120	87.5	.50
28x 96	81.7	.50
30x 96	87.5	.50
30x120	109.4	.50
30x144	131.2	.50
36x 84	91.9	.50
36x 96	105.0	.50
36x120	131.3	.50
36x144	157.5	.50
40x 96	116.7	.50
40x120	145.8	.50
42x 84	107.2	.50
42x 96	122.5	.50
42x120	153.1	.50
42x144	183.8	.50
48x 84	122.5	.50
48x 96	140.0	.50
48x120	175.0	.50
48x144	210.0	.50
48x156	Cinc. 227.5	.50

U.S.S. (Revised) or Mfrs. Gage Size, Inches	Est. Wt. per Sheet	Size Extra
12 Ga. (.1046") Wt. Sq. Ft. 4.375		
54x 96	157.5	.55
54x120	196.9	.55
54x144	236.3	.55
54x156	Cinc. 255.9	.55
60x 96	175.0	.55
60x120	218.8	.55
60x144	262.5	.55
60x168	Cinc. 306.3	.55
72x120	262.5	.60
72x144	315.0	.60
72x180	393.8	.60
72x192	420.0	.60
14 Ga. (.0747") Wt. Sq. Ft. 3.125		
24x 96	50.0	.65
24x120	62.5	.65
30x 96	62.5	.65
30x120	78.1	.65
36x 84	65.6	.65
36x 96	75.0	.65
36x120	93.8	.65
36x144	112.5	.65
42x 96	87.5	.65
42x120	109.4	.65
42x144	131.3	.65
48x 84	87.5	.65
48x 96	100.0	.65
48x120	125.0	.65
48x144	150.0	.65
48x156	Cinc. 162.5	.65
54x 96	112.5	.70
54x120	140.6	.70
54x144	168.8	.70
54x156	Cinc. 182.8	.70
60x 96	125.0	.70
60x120	156.3	.70
60x144	187.5	.70
60x156	Buff. 203.1	.70
60x168	Cinc. 218.8	.70
16 Ga. (.0598") Wt. Sq. Ft. 2.50		
24x 96	40.0	.70
30x 84	43.8	.70
30x 96	50.0	.70
30x120	62.5	.70
30x144	75.0	.70
36x 84	52.5	.70
36x 96	60.0	.70
36x120	75.0	.70
36x144	90.0	.70
42x 96	70.0	.70
42x120	87.5	.70
42x144	105.0	.70
48x 84	70.0	.70
48x 96	80.0	.70
48x120	100.0	.70
48x144	120.0	.70

(Continued)

SHEETS—HOT ROLLED

Prime Quality—Open Hearth—Low Carbon

U.S.S. (Revised) or Mfrs. Gage Size, Inches	Est. Wt. per Sheet	Size Extra
(Continued)		
16 Ga. (.0598") Wt. Sq. Ft. 2.50		
48x156...N.Y.	130.0	.70
54x 96	90.0	.75
54x120	112.5	.75
54x144	135.0	.75
54x156...Chgo.	146.3	.75
60x 96	100.0	.75
60x120	125.0	.75
60x144	150.0	.75
60x168...Chgo.	175.0	.75
18 Ga. (.0478") Wt. Sq. Ft. 2.00		
30x 96......	40.0	.90
30x120	50.0	.90
36x 96	48.0	.90
36x120	60.0	.90
36x144 St. L.	72.0	.90
42x 96......	56.0	.90
42x120	70.0	.90
48x 96	64.0	.90
48x120	80.0	.90
48x144...Chgo.	96.0	.90

SHEETS—HOT ROLLED ANNEALED

Sheets, Hot Rolled Annealed, have been discontinued.
See Cold Rolled Sheets, page 57.

SHEETS—HOT ROLLED

.40 TO .50 CARBON

Prime Quality—Open Hearth

These sheets have all of the inherent quality and uniformity of prime low carbon material and offer greater hardness, strength, and resistance to abrasion due to the higher carbon content. They may be heat treated to develop still greater hardness and strength.

Typical uses include: scrapers, blades, tools and other applications requiring a strong, tough moderate cost steel.

U.S.S. (Revised) or Mfrs. Gage Size, Inches	Est. Wt. per Sheet	Size & Quality Extra
7 Ga. (3/16") Wt. Sq. Ft. 7.50		
*48x192...Chgo.	480.0	1.20
For sizes 54" and wider— See plate section, page 41.		
10 Ga. (.1345") Wt. Sq. Ft. 5.625		
48x120...Chgo.	225.0	1.20
48x144 Det.	270.0	1.20
48x192 N.Y.	360.0	1.20
60x120...Clev.	281.3	1.25
60x144 Chgo.	337.5	1.25
72x120 Chgo.	337.5	1.30
72x144 N.Y.	405.0	1.30
72x192...Det.	540.0	1.30
12 Ga. (.1046") Wt. Sq. Ft. 4.375		
36x 96...Chgo.	105.0	1.20
42x120 Chgo.	153.1	1.20
12 Ga. (.1046") Wt. Sq. Ft. 4.375		
42x192...N.Y.	245.0	1.20
48x 96 Chgo.	140.0	1.20
48x120 Clev.	175.0	1.20
48x192 N.Y.	279.0	1.20
60x 96 Chgo.	175.0	1.25
60x120 Chgo.	218.8	1.25
60x144 Chgo.	262.5	1.25
72x144...N.Y.	314.9	1.30
16 Ga. (.0598") Wt. Sq. Ft. 2.50		
30x120...Clev.	62.5	1.40
36x108 Chgo.	67.5	1.40
48x120...N.Y.	100.0	1.40

*All 7 Ga. (3/16") stock widths cut to any length 5'0" or over without charge. For other cutting charges, see pages 232, 233.

PICKLED AND OILED SHEETS

Prime Quality—Hot Rolled—Open Hearth—Low Carbon

These sheets are rolled accurately to a decimal thickness, are of uniform temper, and have a wider range of applications than ordinary hot rolled sheets because of the smooth, clean, scale free surface resulting from pickling. Oiling protects the uniform gray color against rust while in stock.

They are suitable for stamping and moderate drawing operations, and can be readily welded and punched. The absence of scale permits painting and enameling with assurance of a satisfactory and long lasting job. Uses include: automotive parts, household appliances, high grade toys, etc.

Thickness		Size in Inches	Est. Wt. per Sheet	Size & Quality Extra
Decimal	U.S.S. (Revised) or Mfrs. Gage			
.1793	7	30x 96	Chgo. 150.0	.85
		36x 96	Chgo. 180.0	.85
		36x120	Chgo. 225.0	.85
		48x 96	Chgo. 240.0	.85
		48x120	Chgo. 300.0	.85
		48x144	Chgo. 360.0	.85
.1345	10	24x 96	Buff. 90.0	.85
		24x120	Buff. 112.5	.85
		30x 96	Buff. 112.5	.85
		30x120	Buff. 140.6	.85
		36x 96	Buff. 135.0	.85
		36x120	Buff. 168.8	.85
		36x144	Buff. 197.6	.85
		42x 96	Buff. 157.5	.85
		42x120	Buff. 196.9	.85
		48x 96	Buff. 180.0	.85
		48x120	Buff. 225.0	.85
		48x144	Buff. 270.0	.85
		54x 96	Buff. 202.5	.90
		54x120	Buff. 253.1	.90
		60x 96	Buff. 225.0	.90
		60x120	Buff. 281.3	.90
		60x144	Buff. 337.5	.90
		72x120	Buff. 337.5	.95
		72x144	Buff. 405.0	.95
		72x156	Buff. 438.8	.95
.1196	11	30x 96	Chgo. 100.0	.85
		30x120	Buff. 125.0	.85
		36x 96	Buff. 120.0	.85
		36x120	Buff. 150.0	.85
		42x 96	Buff. 140.0	.85
		42x120	Buff. 175.0	.85
		42x144	Chgo. 210.0	.85
		48x 96	Buff. 160.0	.85
		48x120	Buff. 200.0	.85
		48x144	Buff. 240.0	.85
		60x 96	Buff. 200.0	.90
		60x120	Buff. 250.0	.90
		60x144	Buff. 300.0	.90
		72x120	Buff. 300.0	.95
		72x144	Buff. 360.0	.95
.1046	12	24x 96	Buff. 70.0	.90
		24x120	Buff. 87.5	.90
		30x 96	Buff. 87.5	.85
		30x120	Buff. 109.4	.85
		36x 96	Buff. 105.0	.85
		36x120	Buff. 131.3	.85

(Continued)

PICKLED AND OILED SHEETS

Prime Quality—Hot Rolled—Open Hearth—Low Carbon

Thickness Decimal	Thickness U.S.S. (Revised) or Mfrs. Gage	Size in Inches		Est. Wt. per Sheet	Size & Quality Extra
(Continued)					
.1046	12	36x144	Buff.	157.5	.85
		42x 96	Buff.	122.5	.85
		42x120	Buff.	153.1	.85
		48x 96	Buff.	140.0	.85
		48x120	Buff.	175.0	.85
		48x144	Buff.	210.0	.85
		54x 96	Buff.	157.5	.90
		54x120	Buff.	196.9	.90
		60x 96	Buff.	175.0	.90
		60x120	Buff.	218.8	.90
		60x144	Buff.	262.5	.90
		72x120	Buff.	212.5	.95
		72x156	Buff.	341.2	.95
.0747	14	24x 96	Buff.	50.0	1.10
		30x 96	Buff.	62.5	1.05
		30x120	Buff.	78.1	1.05
		36x 96	Buff.	75.0	1.05
		36x120	Buff.	93.8	1.05
		36x144	Buff.	112.5	1.05
		42x 96	Buff.	87.5	1.05
		42x120	Buff.	109.4	1.05
		48x 96	Buff.	100.0	1.05
		48x120	Buff.	125.0	1.05
		48x144	Buff.	150.0	1.05
		54x 96	Buff.	112.5	1.10
		54x120	Buff.	140.6	1.10
		60x 96	Buff.	125.0	1.10
		60x120	Buff.	156.3	1.10
		60x156	Buff.	203.1	1.10
.0673	15	36x 96	Chgo.	67.5	1.10
.0598	16	24x 96	Buff.	40.0	1.15
		24x120	Buff.	50.0	1.15
		30x 96	Buff.	50.0	1.10
		30x120	Buff.	62.5	1.10
		36x 96	Buff.	60.0	1.10
		36x120	Buff.	75.0	1.10
		36x144	Buff.	90.0	1.10
		42x 96	Buff.	70.0	1.10
		42x120	Buff.	87.5	1.10
		48x 96	Buff.	80.0	1.10
		48x120	Buff.	100.0	1.10
		48x144	Buff.	120.0	1.10
		54x120	Buff.	112.5	1.15
		54x144	Buff.	135.0	1.15
		60x 96	Buff.	100.0	1.15
		60x120	Buff.	125.0	1.15
		60x144	Buff.	150.0	1.15
.0478	18	24x 96	Buff.	32.0	1.35
		24x120	Buff.	40.0	1.35
		30x 96	Buff.	40.0	1.30
		30x120	Buff.	50.0	1.30
		36x 96	Buff.	48.0	1.30
		36x120	Buff.	60.0	1.30
		36x144	Chgo.	72.0	1.30
		42x 96	Buff.	56.0	1.30
		42x120	Buff.	70.0	1.30
		48x 96	Buff.	64.0	1.30
		48x120	Buff.	80.0	1.30

COPPER ALLOY SHEETS

Prime Quality—Hot Rolled—Open Hearth—Low Carbon

Minimum Copper Content .20

In uses involving outdoor exposure or conditions promoting corrosion indoors, Copper Alloy Sheets can generally be expected to give from 2 to 3 times the service life of ordinary non-copper bearing steels.

Because of the durability of products made from Copper Alloy Sheets, many companies have standardized on this quality for their manufactured products as well as for all applications in and around their plants. The slight increase in cost is usually much more than offset by the greatly extended service life.

Typical of the many uses and products made of Copper Alloy Sheets are: roofing and siding, airplane hangars, farm and industrial buildings, truck bodies, railroad cars, farm implements, culverts, signs, tanks, driers, ventilators, washing machines, furnaces, stoves, refrigerators, etc.

U.S.S. (Revised) or Mfrs. Gage Size, Inches	Est. Wt. per Sheet	Size & Quality Extra
7 Ga. (3/16") Wt. Sq. Ft. 7.50		
30x192	..Det. 300.0	75
Wider than 48" — See Plates, page 38		
10 Ga. (.1345") Wt. Sq. Ft. 5.625		
30x 96	..N.Y. 112.5	75
30x120	N.Y. 140.6	.75
36x 96	135.0	.75
36x120	168.8	.75
42x 96	..N.Y. 157.5	75
42x120	N.Y. 196.9	.75
48x 96	180.0	.75
48x120	225.0	.75
48x156	.Chgo. 292.5	75
54x120	Chgo. 253.1	.80
54x156	Chgo. 329.1	.80
60x 96	N.Y. 225.0	.80
60x120	..N.Y. 281.3	80
60x144	Buff. 337.5	.80
60x156	Chgo. 365.6	.80
72x120	Chgo. 337.5	.85
72x156	.Chgo. 438.7	85
12 Ga. (.1046") Wt. Sq. Ft. 4.375		
24x 96	.Chgo. 70.0	75
30x 96	N.Y. 87.5	.75
30x120	N.Y. 109.4	.75
36x 96	Bos. 105.0	.75
36x120	..N.Y. 131.3	75
42x 96	N.Y. 122.5	.75
42x120	N.Y. 153.1	.75
48x 96	140.0	.75
48x120	.....175.0	75
48x156	Chgo. 227.5	.75
54x120	Chgo. 196.9	.80
54x156	Chgo. 255.9	.80
60x 96	..N.Y. 175.0	80

U.S.S. (Revised) or Mfrs. Gage Size, Inches	Est. Wt. per Sheet	Size & Quality Extra
12 Ga. (.1046") Wt. Sq. Ft. 4.375		
60x120	..N.Y. 218.8	80
60x144	Buff. 262.5	.80
60x156	.Chgo. 284.4	80
14 Ga. (.0747") Wt. Sq. Ft. 3.125		
24x 96	.Chgo. 50.0	90
24x120	Chgo. 62.5	.90
30x 96	Chgo. 62.5	.90
30x120	Chgo. 78.1	.90
36x 96	..N.Y. 75.0	90
36x120	N.Y. 93.8	.90
42x 96	Chgo. 87.5	.90
42x120	Chgo. 109.4	.90
48x 96	..N.Y. 100.0	90
48x120	N.Y. 125.0	.90
48x156	Chgo. 162.5	.90
54x120	Chgo. 140.6	.95
54x156	.Chgo. 182.8	95
60x 96	N.Y. 125.0	.95
60x120	N.Y. 156.3	.95
60x156	.Chgo. 203.1	95
16 Ga. (.0598") Wt. Sq. Ft. 2.50		
24x 96	.Chgo. 40.0	95
24x120	Chgo. 50.0	.95
30x 96	N.Y. 50.0	.95
30x120	Chgo. 62.5	.95
36x 96	.....60.0	95
36x120	75.0	.95
42x 96	Chgo. 70.0	.95
42x120	Chgo. 87.5	.95
48x 96	.....80.0	95
48x120	100.0	.95
48x156	Chgo. 130.0	.95
54x120	Chgo. 112.5	1.00
54x156	.Chgo. 146.3	...1.00
60x 96	N.Y. 100.0	1.00
60x120	N.Y. 125.0	1.00
60x156	.Chgo. 162.5	...1.00

SHEETS—COLD ROLLED

Prime Quality—Open Hearth

A continuous mill product in which is incorporated all of the manufacturing know-how of skilled metallurgists working with the most modern type of rolling equipment. A high degree of gauge accuracy and uniformity of physical characteristics is maintained by close operating control.

The smooth de-oxidized satin finish gives an excellent base for paint, lacquer and enamel coating. Box annealing and the absence of scale permit stamping and moderate drawing operations in the production of a wide variety of formed products. Sheets will bend flat on themselves, any direction, without cracking. Oiling protects the smooth, satiny surface against rust while material is in stock.

Among the many uses are refrigerators, ranges, washing machines, auto truck bodies, signs, panels, lockers, store fixtures, etc.

For Hot Rolled Sheets see pages 51-56.

U.S.S. (Revised) or Mfrs. Gage Size, Inches	Est. Wt. per Sheet	Size Extra
7 Ga. (3/16") Wt. Sq. Ft. 7.50		
36x 96	N.Y. 180.0	.80
36x120	225.0	.80
10 Ga. (.1345") Wt. Sq. Ft. 5.625		
30x 96	112.5	.80
36x 96	135.0	.80
36x120	168.8	.80
48x120	225.0	.80
11 Ga. (.1196") Wt. Sq. Ft. 5.00		
30x 96	100.0	.80
30x120	125.0	.80
36x 96	120.0	.80
36x120	150.0	.80
42x120	175.0	.80
48x 96	160.0	.80
48x120	200.0	.80
12 Ga. (.1046") Wt. Sq. Ft. 4.375		
30x 96	87.5	.35
30x120	109.4	.35
36x 96	105.0	.35
36x120	131.0	.35
48x 96	140.0	.35
48x120	175.0	.35
13 Ga. (.0897") Wt. Sq. Ft. 3.75		
30x 96	N.Y. 75.0	.35
36x 96	93.0	.35
36x120	N.Y. 112.5	.35
48x120	150.0	.35
14 Ga. (.0747") Wt. Sq. Ft. 3.125		
30x 96	62.5	.35
30x120	78.1	.35
36x 96	75.0	.35
36x120	93.8	.35
42x120	109.4	.35
48x120	125.0	.35
15 Ga. (.0673") Wt. Sq. Ft. 2.812		
36x 96	N.Y. 67.5	.25
16 Ga. (.0598") Wt. Sq. Ft. 2.50		
30x 96	50.0	.30
30x120	63.0	.30
36x 96	60.0	.25
36x120	75.0	.25
36x144	Det. 90.0	.25
48x 96	80.0	.25
48x120	100.0	.25
48x144	Phil. 120.0	.25
18 Ga. (.0478") Wt. Sq. Ft. 2.00		
30x 96	40.0	.40
30x120	50.0	.40
36x 96	48.0	.30
36x120	60.0	.30
18 Ga. (.0478") Wt. Sq. Ft. 2.00		
42x 96	56.0	.30
42x120	70.0	.30
42x144	84.0	.30
48x 96	64.0	.30
48x120	80.0	.30
48x144	96.0	.30
60x144	120.0	.50
19 Ga. (.0418") Wt. Sq. Ft. 1.75		
30x 96	N.Y. 35.0	.40
36x 96	N.Y. 42.0	.35
36x120	N.Y. 52.5	.35
20 Ga. (.0359") Wt. Sq. Ft. 1.50		
30x 96	30.0	.45
30x120	37.5	.45
36x 96	36.0	.35
36x120	45.0	.35
36x144	54.0	.35
42x120	52.5	.35
42x144	63.0	.35
48x 96	48.0	.35
48x120	60.0	.35
48x144	72.0	.35
48x168	84.0	.35
60x120	75.0	.55
60x144	90.0	.55
22 Ga. (.0299") Wt. Sq. Ft. 1.25		
30x 96	25.0	.55
30x120	31.3	.55
36x 96	30.0	.40
36x120	37.5	.40
36x144	45.0	.40
42x 96	35.0	.40
42x120	43.8	.40
42x144	52.5	.40
48x120	50.0	.40
24 Ga. (.0239") Wt. Sq. Ft. 1.00		
30x 96	20.0	.70
36x 96	24.0	.55
36x120	30.0	.55
48x120	40.0	.55
26 Ga. (.0179") Wt. Sq. Ft. .75		
30x 96	15.0	.95
36x 96	18.0	.85
36x120	22.5	.85
28 Ga. (.0149") Wt. Sq. Ft. .625		
24x 96	N.Y. 10.0	1.05
30x 96	N.Y. 12.5	1.05
36x 96	Det. 15.0	1.00
30 Ga. (.0120") Wt. Sq. Ft. .50		
36x 96	N.Y. 12.0	1.35

SHEETS—STRETCHER LEVELED

Prime Quality—Cold Rolled—Resquared—Oiled

A uniform high quality satin finish sheet that has been further processed by stretcher leveling and resquaring to meet the exacting requirements of certain industries. Produced especially for the manufacture of fine metal furniture, table tops, truck body panels, partitions and other products requiring perfectly flat material.

U.S.S. (Revised) or Mfrs. Gage Size, Inches	Est. Wt. per Sheet	Size Extra
10 Ga. (.1345") Wt. Sq. Ft. 5.625		
48x120	225.0	.80
48x144	Buff. 270.0	.80
11 Ga. (.1196") Wt. Sq. Ft. 5.00		
48x120	200.0	.80
60x144	N.Y. 300.0	1.00
12 Ga. (.1046") Wt. Sq. Ft. 4.375		
48x120	175.0	.35
13 Ga. (.0897") Wt. Sq. Ft. 3.75		
36x 96	N.Y. 90.0	.35
14 Ga. (.0747") Wt. Sq. Ft. 3.125		
36x120	93.8	.35
48x120	125.0	.35
48x144	N.Y. 150.0	.35
72x120	Chgo. 187.5	.60
72x144	N.Y. 225.0	.60
16 Ga. (.0598") Wt. Sq. Ft. 2.50		
36x120	75.0	.25
48x 96	80.0	.25
48x120	100.0	.25
48x144	120.0	.25
60x144	150.0	.45
72x120	Chgo. 150.0	.50
72x144	N.Y. 180.0	.50
18 Ga. (.0478") Wt. Sq. Ft. 2.00		
30x 96	40.0	.40
36x 96	48.0	.30
36x120	60.0	.30
36x144	72.0	.30
42x 96	56.0	.30
42x120	70.0	.30
42x144	84.0	.30
48x 96	64.0	.30
48x120	80.0	.30
48x144	96.0	.30
54x156	N.Y. 117.0	.45
60x144	N.Y. 120.0	.50

U.S.S. (Revised) or Mfrs. Gage Size, Inches	Est. Wt. per Sheet	Size Extra
20 Ga. (.0359") Wt. Sq. Ft. 1.50		
30x 96	30.0	.45
30x120	37.5	.45
36x 96	36.0	.35
36x120	45.0	.35
36x144	54.0	.35
*36x168	Chgo. 63.0	.35
42x 96	42.0	.35
42x120	52.5	.35
42x144	63.0	.35
42x156	N.Y. 68.2	.35
48x 96	48.0	.35
48x120	60.0	.35
48x144	72.0	.35
48x156	N.Y. 78.0	.35
*48x168	N.Y. 84.0	.35
48x192	N.Y. 96.0	.35
54x120	N.Y. 67.5	.50
54x144	N.Y. 81.0	.50
60x120	75.0	.55
60x144	90.0	.55
60x156	N.Y. 97.5	.55
22 Ga. (.0299") Wt. Sq. Ft. 1.25		
30x 96	25.0	.55
36x 96	30.0	.40
36x120	37.5	.40
36x144	45.0	.40
48x120	50.0	.40
48x144	N.Y. 60.0	.40
48x156	Buff. 65.0	.40
24 Ga. (.0239") Wt. Sq. Ft. 1.00		
48x120	40.0	.55
26 Ga. (.0179") Wt. Sq. Ft. .75		
36x 96	N.Y. 18.0	.85
42x144	Chgo. 31.5	.85

*These sizes are not resquared.

VITREOUS ENAMELING IRON SHEETS

Primes—Commercial Quality

These sheets are particularly suitable for drawing, spinning and stamping work. They have a special surface for fusing with vitreous enamel at high temperatures. Being an iron sheet especially free from impurities, loss due to blisters or buckling is reduced to a minimum. Used for table tops, hospital, dental, barber, dairy and restaurant equipment, stove panels and for other purposes where a perfect enamel is desired.

U.S.S. (Revised) or Mfrs. Gage Size, Inches		Est. Wt. per Sheet	Size Extra
16 Ga. (.0598") Wt. Sq. Ft. 2.50			
30x 96	N.Y.	50.0	.55
30x120	Chgo.	62.5	.55
36x 96	N.Y.	60.0	.45
36x120		75.0	.45
42x 96	N.Y.	70.0	.45
42x120	N.Y.	87.5	.45
48x 96	N.Y.	80.0	.45
48x120	N.Y.	100.0	.45
18 Ga. (.0478") Wt. Sq. Ft. 2.00			
24x 96	N.Y.	32.0	.55
24x120	N.Y.	40.0	.55
30x 96		40.0	.55
30x120	N.Y.	50.0	.55
30x144	N.Y.	60.0	.55
36x 96		48.0	.45
36x120		60.0	.45
42x120	Buff.	70.0	.45
48x 96	N.Y.	64.0	.45
48x120		80.0	.45
20 Ga. (.0359") Wt. Sq. Ft. 1.50			
24x 96	Chgo.	24.0	.60
24x120	Chgo.	30.0	.60
30x 96		30.0	.60
30x120	N.Y.	37.5	.60
36x 96		36.0	.50
36x120		45.0	.50
42x120	Chgo.	52.5	.50
48x 96	N.Y.	48.0	.50
48x120		60.0	.50
22 Ga. (.0299") Wt. Sq. Ft. 1.25			
24x 96	N.Y.	20.0	.70
24x120	Chgo.	25.0	.70
30x 96	N.Y.	25.0	.70
30x120	Chgo.	31.3	.70
36x 96	N.Y.	30.0	.55
36x120	N.Y.	37.5	.55
24 Ga. (.0239") Wt. Sq. Ft. 1.00			
24x120	Chgo.	20.0	.85
30x 96	N.Y.	20.0	.85
30x120	Chgo.	25.0	.85
36x 96	N.Y.	24.0	.70
36x120	Chgo.	30.0	.70
26 Ga. (.0179") Wt. Sq. Ft. .75			
36x120	Chgo.	22.5	1.00

GALVANIZED STEEL SHEETS

Prime Quality—Open Hearth—Bright Spangled

Special open hearth and rolling mill practice is followed in producing the base metal which is coated by passing through a bath of molten zinc. Controlled cooling conditions produce a clean, bright, uniform spangle of pleasing appearance.

Sheets are soft and adapted to mild forming operations. Most widely used of all coated sheets for long life and protection against rust.

Galv. Sheet Ga. & Size in Inches	Est. Wt. per Sheet	Size Extra
10 Ga. Wt. Sq. Ft. 5.781		
36x 96	138.8	Base
36x120	173.4	"
48x 96	185.0	.10
48x120	231.2	.10
11 Ga. Wt. Sq. Ft. 5.156		
30x 96	103.0	Base
30x120	129.0	"
36x 96	123.8	"
36x120	154.7	"
48x 96	165.0	.10
48x120	206.2	.10
12 Ga. Wt. Sq. Ft. 4.531		
30x 96	90.6	Base
36x 96	108.8	"
36x120	135.9	"
48x 96	145.0	.10
48x120	181.2	.10
48x144	217.5	.10
14 Ga. Wt. Sq. Ft. 3.281		
30x 96	65.6	Base
30x120	82.0	"
36x 96	78.8	"
36x120	98.4	"
48x 96	105.0	.10
48x120	131.2	.10
16 Ga. Wt. Sq. Ft. 2.656		
30x 96	53.1	Base
30x120	66.4	"
36x 96	63.8	"
36x120	79.7	"
42x 96	74.4	.05
42x120	93.0	.05
48x 96	85.0	.10
48x120	106.2	.10

Galv. Sheet Ga. & Size in Inches	Est. Wt. per Sheet	Size Extra
18 Ga. Wt. Sq. Ft. 2.156		
28x 96	40.2	Base
30x 96	43.1	"
30x120	53.9	"
36x 96	51.8	"
36x120	64.7	"
36x144	77.6	"
42x 96	60.4	.10
42x120	75.5	.10
48x 96	69.0	.15
48x120	86.2	.15
20 Ga. Wt. Sq. Ft. 1.656		
24x 96	26.5	Base
26x 96	28.7	"
28x 96	30.9	"
28x144	46.4	"
30x 96	33.1	"
30x120	41.4	"
30x144	49.6	"
36x 96	39.8	"
36x120	49.7	"
42x 96	46.4	.15
42x120	58.0	.15
48x 96	53.0	.20
48x120	66.2	.20
22 Ga. Wt. Sq. Ft. 1.406		
24x 96	22.5	Base
26x 96	24.4	"
28x 96	26.2	"
30x 96	28.1	"
30x120	35.2	"
36x 96	33.8	"
36x120	42.2	"
42x 96	39.4	.25
42x120	49.2	.25
48x 96	45.0	.30
48x120	56.2	.30

(Continued)

No scrap allowance on Galvanized Sheets cut to special sizes. Waste retained unless advised to the contrary.

Cutting charges on pages 232, 233.

GALVANIZED STEEL SHEETS

Prime Quality—Open Hearth—Bright Spangled

Galv. Sheet Ga. & Size in Inches	Est. Wt. per Sheet	Size Extra
(Continued)		
24 Ga. Wt. Sq. Ft. 1.156		
24x 96	18.5	Base
24x120	23.1	"
26x 96	20.0	"
28x 96	21.6	"
28x120	27.0	"
28x144 Chgo.	32.4	"
30x 96	23.1	"
30x120	28.9	"
30x144 N.Y.	34.6	"
36x 96	27.8	"
36x120	34.7	"
36x144 N.Y.	41.6	"
42x 96	32.4	.30
42x120	40.5	.30
48x 96	37.0	.40
48x120	46.2	.40
26 Ga. Wt. Sq. Ft. .906		
24x 96	14.5	Base
24x120	18.1	"
26x 96	15.7	"
28x 96	16.9	"
28x120	21.1	"
28x144 Chgo.	25.4	"
26 Ga. Wt. Sq. Ft. .906		
30x 96	18.1	Base
30x120	22.7	"
30x144 N.Y.	27.2	"
36x 96	21.8	"
36x120	27.2	"
42x 96	25.4	.35
42x120	31.7	.35
48x 96	29.0	.50
48x120	36.2	.50
28 Ga. Wt. Sq. Ft. .781		
24x 96	12.5	Base
24x120	15.6	"
26x 96	13.5	"
28x 96	14.6	"
28x144 Chgo.	21.8	"
30x 96	15.6	"
30x120	19.5	"
30x144 Chgo.	23.4	"
36x 96	18.8	.20
36x120	23.4	.20
30 Ga. Wt. Sq. Ft. .656		
30x 96	13.1	Base
36x 96	15.8	.20
36x120	19.7	.20

No scrap allowance on Galvanized Sheets cut to special sizes. Waste retained unless advised to the contrary.

LONG TERNE SHEETS

Prime Quality—Standard Coat

Nominal Coating Weight, 6 Lbs. Per Double Base Box

A high uniform quality soft steel sheet which has been coated by immersion in a bath of terne metal, an alloy of lead and tin. All sheets are primes, and have an oiled finish.

These sheets can be worked in moderate stamping and forming operations without surface flaking. They are particularly adapted to soldering due to the natural close union of terne metal and solder.

Used for soldered tanks, automobile accessories, hood and radiator work, fireproof window work, and many other stamped and formed products.

Long Terne Ga. & Size in Inches	Est. Wt. per Sheet	Size Extra
16x36x 96	60.44	Base
18x36x 96	48.44	"
20x30x 96	30.37	"
36x 96	36.44	"
36x120	45.48	"
22x30x 96	25.37	"
22x36x 96	30.44	Base
36x120	37.98	"
24x30x 96	20.36	"
36x 96	24.44	"
26x36x 96	18.44	"
36x120	22.98	"

No scrap allowance on Long Terne Sheets cut to special sizes. Waste retained unless advised to the contrary.

Cutting charges on pages 232, 233.

GALVANIZED TONCAN IRON SHEETS

IRON—COPPER—MOLYBDENUM—ALLOY

Minimum Contents—Copper .40—Molybdenum .05

These sheets feature outstanding resistance to rust and corrosion. They are exceedingly ductile and can be deep drawn, formed, bent, flanged, stamped, or spun. Long service life and excellent welding properties are combined with softness and workability.

A partial list of uses includes air conditioners, ducts, gutters, downspouts, roofing, siding, skylights, furnaces, and general sheet metal work.

Galv. Sheet Ga. & Size in Inches	Est. Wt. per Sheet	Size & Quality Extra
10 Ga. Wt. Sq. Ft. 5.781		
36x 96	138.8	1.25
48x 96	185.0	1.35
12 Ga. Wt. Sq. Ft. 4.531		
30x 96	90.6	1.25
36x 96	108.8	1.25
36x120	135.9	1.25
48x 96	145.0	1.35
48x120	181.2	1.35
14 Ga. Wt. Sq. Ft. 3.281		
30x 96	65.6	1.25
36x 96	78.8	1.25
36x120	98.4	1.25
42x120	114.8	1.30
48x 96	105.0	1.35
48x120	131.2	1.35
16 Ga. Wt. Sq. Ft. 2.656		
30x 96	53.1	1.25
30x120	66.4	1.25
36x 96	63.8	1.25
36x120	79.7	1.25
48x 96	85.0	1.35
48x120	106.2	1.35
18 Ga. Wt. Sq. Ft. 2.156		
30x 96	43.1	1.25
30x120	53.9	1.25
36x 96	51.8	1.25
36x120	64.7	1.25
48x 96	69.0	1.40
48x120	86.2	1.40
20 Ga. Wt. Sq. Ft. 1.656		
30x 96	33.1	1.25
30x120	41.4	1.25
36x 96	39.8	1.25
36x120	49.7	1.25
48x 96	53.0	1.45
48x120	66.2	1.45

Galv. Sheet Ga. & Size in Inches	Est. Wt. per Sheet	Size & Quality Extra
22 Ga. Wt. Sq. Ft. 1.406		
24x 96	22.5	1.25
26x 96	24.4	1.25
28x 96	26.2	1.25
30x 96	28.1	1.25
30x120	35.2	1.25
36x 96	33.8	1.25
36x120	42.2	1.25
48x 96	50.0	1.55
48x120	56.2	1.55
24 Ga. Wt. Sq. Ft. 1.156		
24x 96	18.5	1.25
26x 96	20.0	1.25
28x 96	21.6	1.25
28x120	27.0	1.25
30x 96	23.1	1.25
30x120	28.9	1.25
36x 96	27.8	1.25
36x120	34.7	1.25
48x 96	37.0	1.65
48x120	46.2	1.65
26 Ga. Wt. Sq. Ft. .906		
24x 96	14.5	1.25
26x 96	15.7	1.25
28x 96	16.9	1.25
28x120	21.1	1.25
30x 96	18.1	1.25
30x120	22.7	1.25
36x 96	21.8	1.25
36x120	27.2	1.25
28 Ga. Wt. Sq. Ft. .781		
24x 96	12.5	1.25
24x120	15.6	1.25
26x 96	13.5	1.25
28x 96	14.6	1.25
30x 96	15.6	1.25
30x120	19.5	1.25
36x 96	18.8	1.45
36x120	23.4	1.45

GALVANNEALED STEEL SHEETS

42" and wider—Stretcher Leveled

36" and narrower—Roller Leveled

Coated with a non-flaking zinc by a special process which makes the zinc a definite part of the sheet and eliminates flaking or peeling when sheets are formed or fabricated. Difficult forming operations which cause galvanized sheets to flake prompted the development of galvannealed sheets.

May be formed with dies or handled in brakes without injury to the coating. Paint or lacquer readily adheres to these sheets and may be applied immediately—no waiting for sheets to "weather." Can be soldered or spot welded. Withstands temperatures up to about 750° F. without flaking. Ordinary galvanized coatings in such service tend to flake seriously.

Particularly suited for difficult forming, bending and fabricating work, sign boards and formed products such as mouldings, corner beads, sash, columns, etc.

Galv. Sheet Ga. & Size in Inches	Est. Wt. per Sheet	Size Extra
12 Ga. Wt. Sq. Ft. 4.531		
30x 96. Buff.	90.6	Base
48x 96 Buff.	145.0	.10
48x120. N.Y.	181.2	.10
14 Ga. Wt. Sq. Ft. 3.281		
30x 96..N.Y.	65.6	Base
30x120 N.Y.	82.0	"
36x 96	78.8	"
36x120	98.4	"
48x120	131.2	.10
16 Ga. Wt. Sq. Ft. 2.656		
30x 96	53.1	Base
30x120 N.Y.	66.4	"
36x 96	63.8	"
36x120	79.7	"
36x144	95.6	"
42x144 Buff.	111.6	.05
48x 96 N.Y.	85.0	.10
48x120	106.2	.10
18 Ga. Wt. Sq. Ft. 2.156		
24x 96..N.Y.	34.5	Base
24x120 N.Y.	43.1	"
30x 96	43.1	"
30x120	53.9	"
36x 96	51.8	"
36x120	64.7	"
48x 96	69.0	.15
48x120	86.2	.15
48x144 Chgo.	103.5	.15
20 Ga. Wt. Sq. Ft. 1.656		
24x 96 Chgo.	26.5	Base
30x 96	33.1	"
30x120	41.4	"
36x 96	39.8	"
36x120	49.7	"
42x144 Buff.	69.6	.15
48x 96	53.0	.20
48x120	66.2	.20
48x144	79.5	.20

Galv. Sheet Ga. & Size in Inches	Est. Wt. per Sheet	Size Extra
22 Ga. Wt. Sq. Ft. 1.406		
24x 96..N.Y.	22.5	Base
30x 96 N.Y.	28.1	"
30x120 N.Y.	35.2	"
36x 96	33.8	"
36x120	42.2	"
42x 96 N.Y.	39.4	.25
48x 96	45.0	.30
48x120	56.2	.30
48x144 Chgo.	67.5	.30
24 Ga. Wt. Sq. Ft. 1.156		
24x 96..N.Y.	18.5	Base
30x 96	23.1	"
30x120	28.9	"
36x 96	27.8	"
36x120	34.7	"
42x 96	32.4	.30
42x120 Chgo.	40.5	.30
48x 96	37.0	.40
48x120	46.2	.40
48x144 . Buff.	55.5	.40
26 Ga. Wt. Sq. Ft. .906		
24x 96..N.Y.	14.5	Base
30x 96	18.1	"
30x120 N.Y.	22.7	"
36x 96	21.8	"
36x120	27.2	"
36x144 Chgo.	32.6	"
42x 96 Chgo.	25.4	.35
42x120 Chgo.	31.7	.35
42x144 Chgo.	38.0	.35
48x 96 N.Y.	29.0	.50
48x120 Chgo.	36.3	.50
28 Ga. Wt. Sq. Ft. .781		
30x 96..N.Y.	15.6	Base
30x120 N.Y.	19.5	"
36x 96	18.8	.20
36x120 Chgo.	23.4	.20

No scrap allowance on Galvannealed Sheets cut to special sizes. Waste retained unless advised to the contrary.

Cutting charges on pages 232, 233.

PERFORATED SHEETS AND PLATES

Applications: Screens, Guards, Strainers, Grilles, Enclosures, Baffles, Ventilators, Core Plates, Filters, Baskets, Trays, etc.

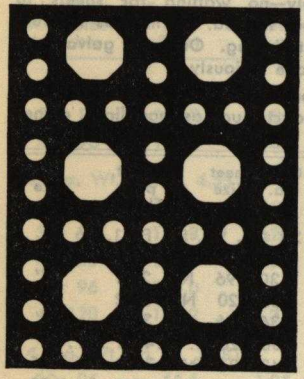
Perforated sheets are stocked in two types only, due to varying requirements in hole shape and size, arrangement and center distances of holes and gage thicknesses.

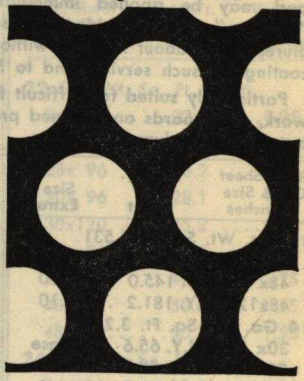
IN STOCK

Perforated from soft steel sheets

Cold Rolled
Standard Cane
22 Gage x 36" x 120"

Cold Rolled
Machine Guard
20 Gage x 36" x 96"
20 Gage x 36" x 120"





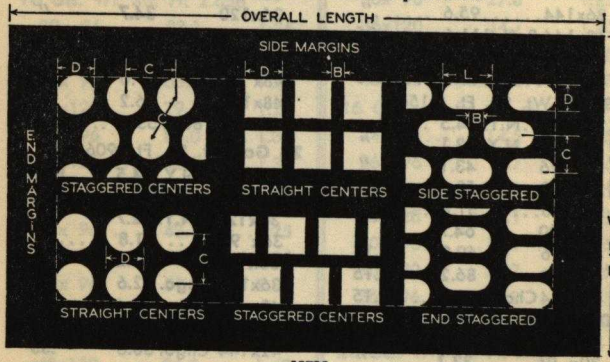
(Actual size of perforations)

PERFORATED TO ORDER

Available tool equipment and our large stocks of flat rolled carbon and stainless steel sheets and plates enable us to furnish an infinite variety of patterns and sizes in perforated products.

For soft steel, the hole diameter or side (D) should be not less than the thickness of the material; for stainless steel, the hole diameter or side (D) should be not less than twice the thickness of the material.

Typical layout—Standard patterns



KEY

D—DIAMETER OR SIDE OF HOLE.
C—CENTER DISTANCE.
L—LENGTH OF SLOT.
B—BAR DISTANCE.

When specifying sheets and plates perforated to your order, please refer to typical layout above and supply as much of the following information as possible

Number of pieces.
Thickness of material.
Grade of steel.
Overall size of sheet or plate.
For slotted holes, show whether length of slot is parallel to the length or to the width of the material.
Size and type of holes.
Type of centers.
Spacing of holes (C) and (B).
Margins, if required.
Indicate direction of flow, across width or length, when used for screening purposes.

If you require additional fabrication, such as cylindrical rolling, forming and welding please give full details, preferably by drawings.

INLAND HI-STEEL

Conforms to SAE Specification 950 for High Strength, Low Alloy Steels

Strong, Tough, Abrasion and Corrosion Resisting

Inland Hi-Steel is a low alloy, high strength steel, high in resistance to abrasion and atmospheric corrosion. Its reasonably low cost permits wide use in place of regular open-hearth carbon steel, reducing dead weight and extending the life of service equipment.

Typical Mechanical Properties

	Thickness Ranges			
	Under 3/16"	3/16" to 3/4" Incl.	Over 3/4" to 1" Incl.	Over 1" to 2" Incl.
Yield Point psi	52,500 min.	50,000 min.	50,000 min.	50,000 min.
Tensile Strength psi	70,000 min.	70,000 min.	70,000 min.	70,000 min.
% Elong. 2"	22 min.	.....	.....	22 min.
% Elong. 8"	.....	1,500,000 T.S.	1,500,000 T.S.	1,500,000 T.S.

Inland Hi-Steel under 3/16" thickness will cold bend flat on itself. It will cold bend 180° around a mandrel diameter equal to thickness of material, from 3/16" to 3/4" incl.; 1 1/2 times thickness of material over 3/4" to 1" incl.; twice thickness of material over 1" to 2" incl.

Other Properties

Resistance to atmospheric corrosion.... 4 to 5 times carbon steel
Ultimate compressive strength, psi.....Equal to tensile strength
Ultimate shear strength, psi.....Equal to 3/4 tensile strength
Modulus of elasticity, psi.....28,000,000 to 30,000,000
Endurance limit, psi.....49,000
Charpy Impact (as rolled), keyhole notch, rm. temp. ft. lbs., avg. 50

Fabricating Practice for Cold Forming

Thickness of Material	Recommended Min. Inside Radius
Up to 1/16" Incl.	1 x thickness
Over 1/16" to 1/4" Incl.	2 x thickness
Over 1/4"	3 x thickness

Cold forming can be done with standard equipment; Hi-Steel may also be punched, sheared, and welded as easily as regular carbon steel. Hot forming does not affect physical properties. Simple heat treatment gives greatly increased mechanical properties.

Among the many applications are: railroad cars, trucks, trailers, cranes, excavating machinery, and other mobile equipment in which it is desired to reduce dead weight, increase payload, add strength and safety, and extend service life. Write for illustrated bulletin giving complete information.

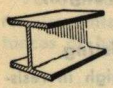
PLATES—HI-STEEL—HOT ROLLED

Identification Colors: Green and White
In our Chicago Plant

Size in Inches	Wt. per Ft., Lbs.	Size Extra	Stock Lgths., Ft.
3/16x60	38.25	.40	5-30
72	45.90	.40	5-30
1/4x48	40.80	.25	5-30
60	51.00	.25	5-20
72	61.20	.25	5-30
5/16x48	51.00	.10	5-30
60	63.75	.10	5-30
72	76.50	.10	5-30
3/8x48	61.20	Base	5-30
60	76.50	"	5-30
72	91.80	"	5-30
1/2x48	81.60	Base	5-30
60	102.00	"	5-30
72	122.40	"	5-30
5/8x72	153.00	"	20, 30
3/4x72	183.60	"	30
7/8x72	214.20	"	20
1 x72	244.80	"	20
1-1/8x72	275.40	"	20
1-1/4x72	306.00	"	20
1-1/2x72	367.20	"	20

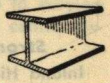
INLAND HI-STEEL

In our Chicago Plant



I BEAMS—HI-STEEL STRUCTURAL SIZES

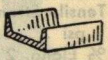
Identification Colors: Green and White



Size in Inches	Weight Per Ft. Lbs.	Thickness of Web	Width of Flange Inches	Size Extra	Stock Lengths Ft.
4	7.7	0.190	2.660	.55	5-40
5	10.0	0.210	3.000	.40	5-40
6	12.5	0.230	3.330	.50	5-40

CHANNELS—HI-STEEL STRUCTURAL SIZES

Identification Colors: Green and White



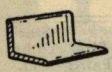
Depth of Channel Inches	Weight Per Ft. Lbs.	Thickness of Web	Width of Flange Inches	Size Extra	Stock Lengths Ft.
3	4.1	0.170	1.410	.80	5-40
4	5.4	0.180	1.580	.60	5-40
5	6.7	0.190	1.750	.45	5-40
6	8.2	0.200	1.920	.40	5-40

ANGLES—HI-STEEL BAR SIZES

Identification Colors: Green and White

Size in Inches	Weight per Ft. Lbs.	Size Extra	Stock Lgths., Ft.
1 x1 x⅛	0.80	.80	20
1¼x1¼x⅛	1.01	.80	20
3/16	1.48	.75	20
1½x1½x⅛	1.23	.65	20
3/16	1.80	.50	20
¼	2.34	.50	20
2 x2 x⅛	1.65	.65	20
3/16	2.44	.50	20
¼	3.19	.50	20
2½x2½x3/16	3.07	.50	20
¼	4.10	.50	20

ANGLES—HI-STEEL STRUCTURAL SIZES



Identification Colors: Green and White

Size In Inches	Weight per Ft. Lbs.	Size Extra	Stock Lgths., Ft.
3 x2 x3/16	3.07	.40	5-40
¼	4.1	Base	5-40
3 x3 x3/16	3.71	.25	5-40
¼	4.9	Base	5-40
4 x3 x¼	5.8	.45	5-40
5/16	7.2	.20	5-40
4 x4 x¼	6.6	.35	5-40

INLAND HI-STEEL

STRIP—HI-STEEL—HOT ROLLED

Identification Colors: Green and White

In our Chicago Plant

Thickness & Width, Inches	Weight per Ft., Lbs.	Size Extra	Stock Lgths., Ft.
.125 (1/8)			
3/4	0.319	1.90	16
1	0.425	1.50	16
1 1/4	0.531	1.45	16
1 1/2	0.638	1.45	16
2	0.850	1.45	16
2 1/2	1.06	.95	16
3	1.28	.95	16
.1875 (3/16)			
3/4	0.478	1.85	16
1	0.638	1.50	16
1 1/4	0.797	1.45	16
1 1/2	0.956	1.45	16
2	1.28	1.45	16
2 1/2	1.59	.95	16
3	1.91	.95	16

FLATS—HI-STEEL—HOT ROLLED

Identification Colors: Green and White

In our Chicago Plant

Size in Inches	Wt. per Ft., Lbs.	Size Extra	Stock Lgths., Ft.
3/16 and lighter—See Inland Hi-Steel Hot Rolled Strip			
1/4x 3/4	0.638	.75	16
1	0.850	.60	16
1 1/4	1.06	.60	16
1 1/2	1.28	.50	16
1 3/4	1.49	.50	16
2	1.70	.50	16
2 1/2	2.13	.35	16
3	2.55	.35	16
4	3.40	.35	16
3/8x 3/4	0.956	.60	16
1	1.28	.50	16
3/8x1 1/4	1.59	.50	16
1 1/2	1.91	.40	16
1 3/4	2.23	.40	16
2	2.55	.40	16
2 1/2	3.19	.35	16
3	3.83	.35	16
4	5.10	.35	16
1/2x1	1.70	.50	16
1 1/2	2.55	.35	16
2	3.40	.35	16
2 1/2	4.25	.30	16
3	5.10	.25	16
4	6.80	.25	16

SHEETS—HI-STEEL—HOT ROLLED

Identification Colors: Green and White

In our Chicago Plant

U.S.S. (Revised) or Mfrs. Gage, Size, Inches	Est. Wt. Per Sheet Lbs.	Size Extra
No. 7 (3/16")x 48x192	480.0	.50
For 72" width, see Hi-Steel Plate		
No. 11x48x120	200.0	.50
48x192	320.0	.50
No. 11x60x120	250.0	.55
60x192	400.0	.55
No. 14x48x120	125.0	.65
48x192	200.0	.65

SHEETS—HI-STEEL—COLD ROLLED

Cold rolled to a high finish and oiled

Identification Colors: Green and White

In our Chicago Plant

U.S.S. (Revised) or Mfrs. Gage Size, Inches	Est. Wt. per Sheet	Size Extra
No. 16x48x120	100.0	Spec.
No. 16x48x192	160.0	Spec.

COLD FINISHED BARS—STANDARD QUALITY

Ryerson Standard Quality Cold Finished Bars are produced from Special Bar Quality Hot Rolled Bars which have been subjected to special manufacturing practices and processes of chemical control, heating, rolling, cooling, surface preparation, etc.

In the production of these bars for cold finishing, sufficient discard is made from each ingot to obtain freedom from injurious piping and harmful segregation. To minimize surface defects, blooms and billets are carefully inspected and prepared by chipping, scarfing, grinding, or other means before they are rolled into hot rolled bars. These special manufacturers' practices and processes insure high quality hot rolled bars from which our cold finished bars are produced. Send for descriptive bulletin.

SHAFTING STEEL

AISI C1018

Identification Color: Green

An open hearth, low carbon steel in the medium manganese content range. It has good case hardening properties; reasonably good machinability; and lends itself well to cold bending and forming operations. It may also be brazed, and welded by any of the common welding processes.

This analysis is suitable for general shafting purposes, and for other applications that do not require the greater strength of high carbon and alloy steels.

AISI C1042

Identification Color: Yellow

This steel represents the higher carbon range in the open hearth carbon group. Its natural physical property advantages over lower carbon steels prove particularly valuable for shafting and similar applications. Good heat treatment response makes these qualities useful for studs and special bolts. AISI C1042 will machine to a much smoother finish than AISI C1018. The high carbon in AISI C1042 results in one of the strongest steels of the carbon grades (excluding alloy steels).

AISI C1141

Identification Colors: Brown and Gold

A comparatively free machining steel suitable for automatic or hand screw machine parts and other applications where fairly high strength and fast, clean machining are required. This steel responds to heat treatment with more uniform results than steels of lower manganese content. Greater resistance to wear is an additional feature.

RYTENSE AA

See page 98 for complete listing of Rytense AA

A medium carbon free machining machinery steel that machines within 75% of the machinability of Bessemer screw stock B1112. Rytense AA, in the as rolled condition, has an average tensile strength in the cold drawn bar of approximately 110,000 p.s.i. Turned and polished bars have an average tensile strength of 95,000 p.s.i.

Rytense AA can be heat treated to develop higher mechanical properties. This steel lends itself readily to flame and induction hardening. Descriptive bulletin will be sent on request.

SHAFTING STEEL

COLD FINISHED ROUNDS

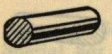
All sizes 2 15/16" and larger are Turned and Polished.

Size in Inches	Wt. per Ft., Lbs.	Size & Qual. Extra 1018	1042	1141	Random Lengths, Feet C1018	C1042	C1141
1/8	0.042	.45	...	...	10-12	...	...
5/32	0.065	4.45	...	...	Chgo. 10-12	....	....
3/16	0.094	3.20	3.55	...	10-12	10-12	....
1/4	0.167	2.20	2.55	2.80	10-12	14-16	10-12
5/16	0.261	1.95	2.30	2.55	10-12	14-16	10-12
3/8	0.376	1.75	1.85	2.35	10-12	14-16	10-12
7/16	0.511	1.65	1.75	2.25	10-12	14-16	10-12
1/2	0.668	1.55	1.65	2.15	10-12	14-16	10-12
9/16	0.845	1.50	1.60	2.10	10-12	14-16	10-12
5/8	1.04	1.05	1.15	1.65	10-12	14-16	10-12
11/16	1.26	.90	1.00	1.50	10-12	14-16	10-12
3/4	1.50	.90	1.00	1.50	10-12,18-20	14-16	10-12
13/16	1.76	.90	1.00	1.50	10-12,18-20	14-16	10-12
7/8	2.04	.90	1.00	1.50	10-12,18-20	14-16	10-12
15/16	2.35	.80	.90	1.40	10-12,18-20	14-16	10-12
1	2.67	.80	.90	1.40	10-12,18-20	14-16	10-12
1 1/16	3.01	.80	.90	...	10-12,18-20	14-16	...
1 1/8	3.38	.80	.90	1.40	10-12,18-20	14-16	10-12
1 3/16	3.77	.80	.90	1.40	10-12,18-20	14-16	10-12
1 1/4	4.17	.80	.90	1.40	10-12,18-20	14-16	10-12
1 5/16	4.60	.80	.90	1.40	10-12,18-20	14-16	10-12
1 3/8	5.05	.80	.90	1.40	10-12,18-20	14-16	10-12
1 7/16	5.52	.70	.80	1.30	10-12,18-20	14-16	Buff. 18-20
1 1/2	6.01	.70	.80	1.30	10-12,18-20	14-16	10-12
1 9/16	6.52	.70	.80	1.30	10-12,18-20	14-16	Buff. 10-12
1 5/8	7.05	.70	.80	1.30	10-12,18-20	14-16	10-12
1 11/16	7.60	.70	.80	1.30	10-12,18-20	14-16	Buff. 18-20
1 3/4	8.18	.70	.80	1.30	10-12,18-20	14-16	10-12
1 13/16	8.77	.70	.80	...	10-12,18-20	14-16	...
1 7/8	9.39	.70	.80	1.30	10-12,18-20	18-20	10-12
1 15/16	10.02	.80	.90	1.40	10-12,18-20	18-20	Buff. 18-20
2	10.68	.80	.90	1.40	10-12,18-20	18-20	10-12
2 1/16	11.36	.80	.90	...	10-12,18-20	18-20	...
2 1/8	12.06	.80	.90	1.40	10-12,18-20	18-20	10-12
2 3/16	12.78	.80	.90	...	10-12,18-20	18-20	....
2 1/4	13.52	.80	.90	1.40	10-12,18-20	18-20	10-12
2 5/16	14.28	.80	.90	...	10-12,18-20	18-20	...
2 3/8	15.06	.80	.90	1.40	10-12,18-20	18-20	10-12
2 7/16	15.87	.80	.90	1.40	10-12,18-20	18-20	Buff. 18-20
2 1/2	16.69	.80	.90	1.40	10-12,18-20	18-20	10-12
2 9/16	17.53	.80	...	...	10-12,18-20	...	...
2 5/8	18.40	.80	.90	1.40	10-12,18-20	18-20	Buff. 10-12
2 11/16	19.29	.80	.90	1.40	10-12,18-20	18-20	Buff. 18-20
2 3/4	20.20	.80	.90	1.40	10-12,18-20	18-20	Buff. 10-12
2 13/16	21.12	.80	.90	...	10-12,18-20	18-20	....
2 7/8	22.07	.80	.90	1.40	10-12,18-20	18-20	Clev. 10-12

(Continued)

For Cutting Extras turn to last section of book.

SHAFTING STEEL



COLD FINISHED ROUNDS

All sizes 2 15/16" and larger are Turned and Polished.

Size in Inches	Wt. per Ft., Lbs.	Size & Qual. Extra 1018	1042	1141	Random Lengths, Feet C1018	C1042	C1141
(Continued)							
2 15/16	23.04	1.40	1.60	2.10	10-12,18-20	18-20	Buff. 18-20
3	24.03	1.40	1.60	2.10	10-12,17-20	17-20	10-13
3 1/16	25.05	1.50	...	...	10-12,17-20	....	....
3 1/8	26.08	1.50	1.70	2.20	10-12,17-20	17-20	Clev. 10-12
3 3/16	27.13	1.50	1.70	...	10-12,17-20	17-20	....
3 1/4	28.21	1.50	1.70	2.20	10-12,17-20	17-20	Clev. 10-12
3 5/16	29.30	1.50	...	...	10-12,17-20	....	....
3 3/8	30.42	1.50	1.70	...	10-12,17-20	17-20	....
3 7/16	31.55	1.60	1.80	...	10-12,17-20	17-20	....
3 1/2	32.71	1.60	1.80	2.30	10-12,17-20	17-20	Clev. 10-12
3 9/16	33.89	1.60	.....	.....	10-12,17-20	.....	.....
3 5/8	35.09	1.60	1.80	...	10-12,17-20	17-20	....
3 11/16	36.31	1.60	1.80	...	10-12,17-20	17-20	....
3 3/4	37.55	1.60	1.80	2.30	10-12,17-20	17-20	Clev. 10-12
3 13/16	38.81	1.75	...	...	10-12,17-20	....	....
3 7/8	40.10	1.75	1.95	.....	10-12,17-20	17-20	.....
3 15/16	41.40	1.75	1.95	2.45	10-12,17-20	17-20	Cinc. 10-13
4	42.73	1.75	1.95	2.45	10-12,17-20	17-20	Clev. 10-13
4 1/8	45.44	1.75	1.95	...	10-12,17-20	17-20	....
4 3/16	46.83	1.85	2.05	...	10-12,17-20	17-20	....
4 1/4	48.23	1.85	2.05	.....	10-12,17-20	17-20	.....
4 5/16	49.66	1.85	...	...	10-12,17-20	....	....
4 3/8	51.11	1.85	2.05	...	10-12,17-20	17-20	....
4 7/16	52.58	1.95	2.15	...	10-12,17-20	17-20	....
4 1/2	54.08	1.95	2.15	...	10-12,17-20	17-20	....
4 9/16	55.59	1.95	.....	.....	Chgo. 17-20	.....	.....
4 5/8	57.12	1.95	2.15	...	10-12,17-20	Chgo. 17-20	....
4 11/16	58.68	1.95	2.15	...	10-12,17-20	Chgo. 17-20	....
4 3/4	60.25	1.95	2.15	...	10-12,17-20	17-20	....
4 7/8	63.46	1.95	2.15	...	10-12,17-20	17-20	....
4 15/16	65.10	2.05	2.25	.....	10-12,17-20	17-20	.....
5	66.76	2.05	2.25	...	10-12,17-20	17-20	....
5 1/16	68.44	2.05	...	...	Chgo. 17-20	....	....
5 1/8	70.14	2.05	...	...	10-12,17-20	....	....
5 3/16	71.86	2.05	...	...	Clev. 17-20	....	....
5 1/4	73.60	2.05	2.25	.....	10-12,17-20	17-20	.....
5 3/8	77.15	2.05	...	...	10-12,17-20	....	....
5 7/16	78.95	2.55	2.75	...	10-12,17-20	17-20	....
5 1/2	80.78	2.55	2.75	...	10-12,17-20	17-20	....
5 5/8	84.49	2.55	...	...	10-12,17-20	....	....
5 3/4	88.29	2.55	2.75	.....	10-12,17-20	17-20	.....
5 7/8	92.17	2.55	...	...	10-12,17-20	....	....
5 15/16	94.14	3.00	3.20	...	10-12,17-20	17-20	....
6	96.13	3.00	3.20	...	10-12,17-20	17-20	....
6 1/4	104.31	4.65	4.90	...	10-12,17-20	Chgo. 17-20	....
6 1/2	112.82	5.50	5.75	.....	10-12,17-20	Chgo. 17-20	.....
6 3/4	121.67	5.50	...	...	10-12,17-20	....	....
7	130.85	5.50	5.75	...	10-12,17-20	Chgo. 17-20	....
7 1/2	150.21	5.75	...	...	17-20	....	....
8	170.90	Spec.	...	...	17-20	....	....
*9	216.30	Spec.	...	...	17-20	....	....
*10	267.04	Spec.	.....	.....	13-16	.....	.....

*These sizes are grade C1020.

For Cutting Extras turn to last section of book.

CUMBERLAND TURNED, GROUND, & POLISHED SHAFTING

Cold Finished—Keyway Stock

AISI C1020

Identification Colors: Green and Red Stripe

Cumberland quality is generally used for transmission and machine parts, pump parts and similar work. It has approximately the mechanical qualities of AISI-C1020, which are as follows:

CHEMICAL		MECHANICAL	
Carbon	.18/.23	Yield Point	30,000 Lbs. Min.
Manganese	.30/.60	Tensile strength	55,000 Lbs. Min.
Phosphorus	.040 Max.	Brinell hardness	111 Min.
Sulphur	.050 Max.		

Tolerances

1⅛" to 2 7/16" exact size to not more than .002" under.
2½" and larger exact size to not more than .003" under.

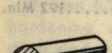
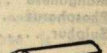
Stock Lengths—20'

Size in Inches	Wt. per Ft., Lbs.	Size & Finish Extra	Size in Inches	Wt. per Ft., Lbs.	Size & Finish Extra	Size in Inches	Wt. per Ft., Lbs.	Size & Finish Extra
1⅛	3.38	5.15	2 3/16	12.78	4.05	3½	32.71	4.05
1 3/16	3.77	4.85	2¼	13.52	4.05	3 5/8	35.09	4.05
1¼	4.17	4.85	2 5/16	14.28	4.05	3¾	37.55	4.05
1 5/16	4.60	4.85	2⅜	15.06	4.05	3 15/16	41.40	4.20
1⅜	5.05	4.85	2 7/16	15.87	4.05	4	42.73	4.20
1 7/16	5.52	4.75	2½	16.69	4.05	4⅛	45.44	4.70
1½	6.01	4.75	2 5/8	18.40	4.05	4 3/16	46.83	4.80
1 9/16	6.52	4.40	2 11/16	19.29	4.05	4¼	48.23	4.80
1 5/8	7.05	4.40	2¾	20.20	4.05	4 5/16	49.66	4.80
1 11/16	7.60	4.40	2⅞	22.07	4.05	4 7/16	52.58	4.90
1¾	8.18	4.40	2 15/16	23.04	3.85	4½	54.08	4.90
1 13/16	8.77	4.40	3	24.03	3.85	4 5/8	57.12	4.90
1⅞	9.39	4.40	3 3/16	27.13	3.95	4 15/16	65.10	5.00
1 15/16	10.02	4.05	3¼	28.21	3.95	5	66.76	5.00
2	10.68	4.05	3⅜	30.42	3.95	5½	80.78	5.50
2 1/16	11.36	4.05	3 7/16	31.55	4.05	6	96.13	5.95
2⅛	12.06	4.05						

POTOMAC TURNED, GROUND, & POLISHED SHAFTING

COLD FINISHED

AISI C1040

Identification Color: Golden Brown

Potomac quality is used by manufacturers of machinery and users of line shafts, or where a shaft stronger than the Cumberland quality is required. This grade approximates the mechanical qualities of AISI-C1040, and its properties are about as follows:

CHEMICAL		MECHANICAL	
Carbon	.37/.44	Yield point	45,000 Lbs. Min.
Manganese	.60/.90	Tensile strength	75,000 Lbs. Min.
Phosphorus	.040 Max.	Brinell hardness	150 Min.
Sulphur	.050 Max.		

Tolerances

1⅛" to 2 7/16" exact size to not more than .002" under.
2½" and larger exact size to not more than .003" under.

Size in Inches	Wt. per Ft., Lbs.	Size & Finish Extra	Stock Lgths., Ft.	Size in Inches	Wt. per Ft., Lbs.	Size & Finish Extra	Stock Lgths., Ft.
1⅛	3.38	5.80	20	1½	6.01	5.25	20
1 3/16	3.77	5.35	20	1 9/16	6.52	4.90	20
1¼	4.17	5.35	20	1 5/8	7.05	4.90	20
1 5/16	4.60	5.35	20	1 11/16	7.60	4.90	20
1⅜	5.05	5.35	20				
1 7/16	5.52	5.25	20				

(Continued)

POTOMAC TURNED, GROUND & POLISHED SHAFTING

COLD FINISHED

AISI C1040

Identification Color: Golden Brown

Size in Inches	Wt. per Ft., Lbs.	Size & Finish Extra	Stock Lgths., Ft.
(Continued)			
1¾	8.18	4.90	20
1 13/16	8.77	4.90	20
1⅞	9.39	4.90	20
1 15/16	10.02	4.30	20
2	10.68	4.30	20
2 1/16	11.36	4.30	20
2⅛	12.06	4.30	20
2 3/16	12.78	4.30	20
2¼	13.52	4.30	20
2⅜	15.06	4.30	20
2 7/16	15.87	4.30	20
2½	16.69	4.30	20
2 9/16	17.53	4.30	20
2⅝	18.40	4.30	20
2 11/16	19.29	4.30	20
2¾	20.20	4.30	20
2⅞	22.07	4.30	20
2 15/16	23.04	4.10	20
3	24.03	4.10	20
3⅛	26.08	4.20	20
3¼	28.21	4.20	20
3⅜	30.42	4.20	20
3 7/16	31.55	4.30	20
3½	32.71	4.30	20
3¾	37.55	4.30	20
3 15/16	41.40	4.45	20
4	42.73	4.45	20
4 7/16	52.58	5.20	24
4½	54.08	5.20	20
4 15/16	65.10	5.30	24
5	66.76	5.30	20
6	96.13	6.25	20

CUMSCO TURNED, GROUND & POLISHED SHAFTING

COLD FINISHED

AISI C1141

Identification Colors: Brown and Gold

Cumsco quality is specified mainly in the machine tool business for lead screws and similar purposes. In the hot rolled condition Cumsco conforms to AISI-C1141 specifications. The approximate properties are as follows:

CHEMICAL		MECHANICAL	
Carbon	.37/.45	Yield point	57,000 Lbs. Min.
Manganese	1.35/1.65	Tensile strength	95,000 Lbs. Min.
Phosphorus	.045 Max.	Brinell hardness	192 Min.
Sulphur	.08/.13		

Tolerances

1⅛" to 2 7/16" exact size to not more than .002" under.
2½" and larger exact size to not more than .003" under.
In our Cincinnati Plant

Size in Inches	Wt. per Ft., Lbs.	Size & Finish Extra	Stock Lgths., Ft.
1⅛	3.38	6.30	20
1 3/16	3.77	5.85	20
1¼	4.17	5.85	20
1 5/16	4.60	5.85	20
1⅜	5.05	5.85	20
1 7/16	5.52	5.75	20
1½	6.01	5.75	20
1⅝	7.05	5.40	20
1 11/16	7.60	5.40	20
1¾	8.18	5.40	20
1⅞	9.39	5.40	20
1 15/16	10.02	4.80	20
2	10.68	4.80	20
2 3/16	12.78	4.80	20
2¼	13.52	4.80	20
2⅜	15.06	4.80	20
2 7/16	15.87	4.80	20
2½	16.69	4.80	20
2 11/16	19.29	4.80	20
2¾	20.20	4.80	20
2 15/16	23.04	4.60	20
3	24.03	4.60	20
3¼	28.21	4.70	20
3 7/16	31.55	4.80	20
3½	32.71	4.80	20
3¾	37.55	4.80	20
3 15/16	41.40	4.95	20
4	42.73	4.95	20
4½	54.08	5.70	20
5	66.76	5.80	20

SCREW STEEL—COLD FINISHED

Standard Quality Cold Finished Bars are produced from Special Quality Hot Rolled Bars.

AISI B1112

Identification Color: White

A Bessemer free cutting steel which has long been accepted as having a machinability of 100% for screw steels. Used for machined parts and fittings such as bolts, nuts, studs, screws, small shafts, gears, etc., made under fast cutting tools on screw machines.

AISI B1113

Identification Color: Orange

A high sulphur content Bessemer steel, affording an increase in cutting speeds of 20% to 40% as compared to the standard Bessemer screw steel. Cuts and threads cleanly in automatic screw machine operations; finished parts are smooth and bright. Tool life is extended and increased production results when this steel is used for making screws, bolts, small parts, etc.

AISI C1117

Identification Color: Gold

An open hearth, low carbon high manganese steel having good machinability coupled with excellent case carburizing properties. Machinability rating is within 10% of that of standard Bessemer screw steel; when case hardened the case is hard, deep and uniform, supported by a tough, ductile core.

In the case hardened condition, this steel possesses mechanical properties in the core surpassed only by the more costly alloy steels; its free-cutting properties permit high production of a great variety of pieces and parts. Will withstand bending, broaching, and most deforming operations without cracking.

LEDLOY

Identification Color: Purple

For complete listing and description of Ledloy see page 76.

RYCASE

(For complete listing of Rycase see page 94.)

Rycase is an open hearth, low carbon, free machining machinery steel. In the as rolled condition, without heat treatment, it offers a better steel due to the refinements secured by additional manganese and a special method of manufacture.

Rycase fulfills in every way the demand for a highly refined case hardening steel without sacrificing machinability. Case is hard, deep and uniform. Core is tough and ductile without being brittle. Write for descriptive bulletin.

ROUNDS

Size in Inches	Wt. per Ft., Lbs.	Size & Qual. Extra 1113	Size & Qual. Extra 1117	Random Lengths, Feet B1113	Random Lengths, Feet C1117
1/16	.010	Spec.		10-12	
5/64	.016	Spec.	...	10-12	....
3/32	.023	Spec.	...	10-12	....
7/64	.032	Spec.	...	10-12	....
1/8	.042	5.30	...	10-12	....
9/64	.053	5.30		10-12	
5/32	.065	5.30	...	10-12	....
11/64	.079	5.30	...	10-12	....
3/16	.094	4.05	3.85	10-12	10-12
13/64	.110	4.05	...	10-12	....
7/32	.128	4.05		10-12	
15/64	.147	4.05	...	10-12	....
1/4	.167	3.05	2.85	10-12	10-12
17/64	.188	3.05	...	10-12	....
9/32	.211	3.05	2.85	10-12	Buff. 10-12

(Continued)

SCREW STEEL—COLD FINISHED

ROUNDS

Size in Inches	Wt. per Ft., Lbs.	Size & Qual. Extra 1112	1113	1117	Random Lengths, Feet B1112	B1113	C1117
19/64	.235		3.05			10-12	
5/16	.261	...	2.80	2.60	....	10-12	10-12
21/64	.288	...	2.80	...	....	10-12	....
11/32	.316	...	2.80	2.60	....	10-12	Chgo. 10-12
23/64	.345	...	2.80	...	....	10-12	....
3/8	.376	2.40	2.60	2.40	10-12	10-12	10-12
25/64	.407	...	2.60	...	....	10-12	....
13/32	.441	...	2.60	...	....	10-12	....
27/64	.475	...	2.60	...	....	10-12	....
7/16	.511	2.30	2.50	2.30	10-12	10-12	10-12
29/64	.548	...	2.50	...	....	10-12	....
15/32	.587	...	2.50	...	....	10-12	....
31/64	.627	...	2.50	...	....	10-12	....
1/2	.668	2.20	2.40	2.20	10-12	10-12	10-12
33/64	.710	...	2.40	...	....	10-12	....
17/32	.754	...	2.40	...	....	10-12	....
9/16	.845	2.15	2.35	2.15	10-12	10-12	10-12
37/64	.893		2.35			10-12	
19/32	.941	...	2.35	...	....	10-12	....
39/64	.992	...	2.35	...	....	10-12	....
5/8	1.04	1.70	1.90	1.70	10-12	10-12	10-12
41/64	1.10	...	1.90	...	....	10-12	....
21/32	1.15		1.90			10-12	
11/16	1.26	1.65	1.75	1.55	10-12	10-12	10-12
23/32	1.38	...	1.75	...	....	10-12	....
47/64	1.44	...	1.75	...	....	10-12	....
3/4	1.50	1.55	1.75	1.55	10-12	10-12	10-12
49/64	1.57		1.75			10-12	
25/32	1.63	...	1.75	...	....	10-12	....
13/16	1.76	1.55	1.75	1.55	10-12	10-12	10-12
27/32	1.90	...	1.75	...	....	10-12	....
7/8	2.04	1.55	1.75	1.55	10-12	10-12	10-12
29/32	2.19		1.75			10-12	
15/16	2.35	1.45	1.65	1.45	10-12	10-12	10-12
31/32	2.51	...	1.65	...	....	10-12	....
1	2.67	1.45	1.65	1.45	10-12	10-12	10-12
1 1/32	2.84	...	1.65	...	....	10-12	....
1 1/16	3.01	1.45	1.65	1.45	10-12	10-12	10-12
1 1/8	3.38	1.45	1.65	1.45	10-12	10-12	10-12
1 3/16	3.77	1.45	1.65	1.45	10-12	10-12	10-12
1 1/4	4.17	1.45	1.65	1.45	10-12	10-12	10-12
1 5/16	4.60	1.45	1.65	1.45	10-12	10-12	10-12
1 3/8	5.05	1.45	1.65	1.45	10-12	10-12	10-12
1 7/16	5.52	1.35	1.55	1.35	10-12	10-12	10-12
1 1/2	6.01	1.35	1.55	1.35	10-12	10-12	10-12
1 9/16	6.52	1.35	1.55	1.35	10-12	10-12	10-12
1 5/8	7.05	1.35	1.55	1.35	10-12	10-12	10-12
1 11/16	7.60	1.35	1.55	1.35	10-12	10-12	10-12
1 3/4	8.18	1.35	1.55	1.35	10-12	10-12	10-12
1 13/16	8.77	1.35	1.55	1.35	10-12	10-12	10-12
1 7/8	9.39	1.35	1.55	1.35	10-12	10-12	10-12
1 15/16	10.02	1.45	1.65	1.45	10-12	10-12	10-12
2	10.68	1.45	1.65	1.45	10-12	10-12	10-12
2 1/16	11.36	1.45	1.65	1.45	10-12	10-12	10-12
2 1/8	12.06	1.45	1.65	1.45	10-12	10-12	10-12

(Continued)

For Cutting Extras turn to last section of book.

SCREW STEEL—COLD FINISHED

ROUNDS

All sizes $2\frac{15}{16}$" and larger are Turned and Polished.

Size in Inches	Wt. per Ft., Lbs.	Size & Qual. Extra 1112	1113	1117	Random Lengths, Feet B1112	B1113	C1117
(Continued)							
$2\frac{3}{16}$	12.78	1.45	1.65	1.45	10-12	10-12	10-12
$2\frac{1}{4}$	13.52	1.45	1.65	1.45	10-12	10-12	10-12
$2\frac{5}{16}$	14.28	1.45	1.65	1.45	10-12	10-12	10-12
$2\frac{3}{8}$	15.06	1.45	1.65	1.45	10-12	10-12	10-12
$2\frac{7}{16}$	15.87	1.45	1.65	1.45	10-12	10-12	10-12
$2\frac{1}{2}$	16.69	1.45	1.65	1.45	10-12	10-12	10-12
$2\frac{9}{16}$	17.53	1.45	...	1.45	10-12	....	10-12
$2\frac{5}{8}$	18.40	1.45	1.65	1.45	10-12	10-12	10-12
$2\frac{11}{16}$	19.29	1.45	...	1.45	10-12	....	10-12
$2\frac{3}{4}$	20.20	1.45	1.65	1.45	10-12	10-12	10-12
$2\frac{13}{16}$	21.12	1.45	.....	1.45	10-12	.....	10-12
$2\frac{7}{8}$	22.07	1.45	1.65	1.45	10-12	10-12	10-12
$2\frac{15}{16}$	23.04	2.05	2.25	2.05	10-12	10-12	10-12
3	24.03	2.05	2.25	2.05	10-13	Chgo. 10-13	10-13
$3\frac{1}{16}$	25.05	2.15	...	2.15	10-13	....	10-13
$3\frac{1}{8}$	26.08	2.15	.....	2.15	10-13	.....	10-13
$3\frac{3}{16}$	27.13	2.15	...	2.15	10-13	....	Chgo. 10-13
$3\frac{1}{4}$	28.21	2.15	...	2.15	10-13	....	10-13
$3\frac{5}{16}$	29.30	2.15	...	2.15	10-13	....	10-13
$3\frac{3}{8}$	30.42	2.15	...	2.15	10-13	....	10-13
$3\frac{7}{16}$	31.55	2.25	.....	2.25	10-13	.....	Buff. 10-13
$3\frac{1}{2}$	32.71	2.25	...	2.25	10-13	....	10-13
$3\frac{9}{16}$	33.89	2.25	...	...	10-13	....	....
$3\frac{5}{8}$	35.09	2.25	...	2.25	10-13	....	10-13
$3\frac{3}{4}$	37.55	2.25	...	2.25	10-13	....	10-13
$3\frac{7}{8}$	40.10	2.40	...	2.40	10-13	....	10-13
4	42.73	2.40	.....	2.40	10-13	.....	10-13
$4\frac{1}{8}$	45.44	2.40	...	2.40	10-13	....	10-13
$4\frac{1}{4}$	48.23	2.50	...	2.50	10-13	....	10-13
$4\frac{3}{8}$	51.11	2.50	...	2.50	10-13	....	10-13
$4\frac{1}{2}$	54.08	2.60	...	2.60	10-13	....	10-13
$4\frac{5}{8}$	57.12	...	...	2.60	....	....	10-13
$4\frac{3}{4}$	60.25	.....	.....	2.60	.....	.....	10-13
$4\frac{7}{8}$	63.46	...	...	2.60	....	....	10-13
5	66.76	2.70	...	2.70	10-13	....	10-13
$5\frac{1}{4}$	73.60	...	...	2.70	....	....	10-13
$5\frac{1}{2}$	80.78	3.20	...	3.20	10-13	....	10-13
$5\frac{3}{4}$	88.29	...	...	3.20	....	....	10-13
6	96.13	3.65	.....	3.65	10-13	.....	10-13

For Cutting Extras turn to last section of book.

SPECIAL COLD DRAWN SHAPES

Made to Order

We are able to furnish special cold drawn shapes made to your exact requirements. From dies accurately made to your order, a tailor-made cold drawn shape is produced. Since the shape is custom manufactured to your particular specification, orders are subject to standard mill regulations on delivery and on minimum requirements for mill production.

LEDLOY

Identification Color: Purple

COLD FINISHED ROUNDS

Ledloy, an open hearth steel, was designed and developed to obtain faster machinability, smoother finish and longer tool life. Case studies indicate that it machines from 30% to 50% faster than the generally accepted Hi-Speed Bessemer qualities such as AISI B1113.

Ledloy Steel embodies the most desirable features of both high sulphurized Bessemer and sulphurized open hearth free cutting grades. A small percentage of lead, added by a special process is in such a fine state of distribution that it cannot be seen under a microscope. The addition of lead has no effect on the mechanical properties of the steel except to greatly increase machinability. It retains all of the advantages of open hearth steel such as ductility, high impact values, transverse strength and effective carburizing qualities. Descriptive bulletin will be sent on request.

Size in Inches	Wt. per Ft., Lbs.	Size Extra	Random Lgths, Ft.
1/4	.167	3.85	10-12
17/64	.188	3.85	Chgo. 10-12
9/32	.211	3.85	10-12
5/16	.261	3.60	10-12
21/64	.288	3.60	Chgo. 10-12
11/32	.316	3.60	10-12
3/8	.376	3.40	10-12
25/64	.407	3.40	Chgo. 10-12
13/32	.441	3.40	10-12
7/16	.511	3.30	10-12
29/64	.548	3.30	Chgo. 10-12
15/32	.587	3.30	10-12
1/2	.668	3.20	10-12
33/64	.710	3.20	Chgo. 10-12
17/32	.754	3.20	10-12
9/16	.845	3.15	10-12
37/64	.893	3.15	Chgo. 10-12
19/32	.941	3.15	10-12
5/8	1.04	2.70	10-12
41/64	1.10	2.70	Chgo. 10-12
21/32	1.15	2.70	10-12
11/16	1.26	2.55	10-12
23/32	1.38	2.55	10-12
3/4	1.50	2.55	10-12
25/32	1.63	2.55	Chgo. 10-12
13/16	1.76	2.55	10-12
27/32	1.90	2.55	Chgo. 10-12
7/8	2.04	2.55	10-12
29/32	2.19	2.55	Chgo. 10-12
15/16	2.35	2.45	10-12
1	2.67	2.45	10-12
1 1/16	3.01	2.45	Chgo. 10-12
1 1/8	3.38	2.45	10-12
1 3/16	3.77	2.45	Chgo. 10-12
1 1/4	4.17	2.45	10-12
1 3/8	5.05	2.45	10-12
1 1/2	6.01	2.35	10-12
1 5/8	7.05	2.35	10-12
1 3/4	8.18	2.35	10-12
1 7/8	9.39	2.35	10-12
2	10.68	2.45	10-12

See page 81 for Ledloy Cold Finished Hexagons.

LEDLOY

the fastest cutting steel

Ledloy—in test after test under actual shop operating conditions—has proved its superiority over all other free cutting steels. An open hearth steel with excellent mechanical properties, the exacting addition of a small percentage of lead greatly increases its machinability. The impact of Ledloy on the screw machine picture has changed former concepts of free cutting steels. Both jobbing shops and manufacturers have learned that—using Ledloy they can increase the spindle speed of their machines, increase feeds, save on tool grinding costs, and turn out a product having equal mechanical properties and a better finish. Write for new bulletin.

GROUND AND POLISHED ACCURACY STOCK

AISI C1040 Identification Color: Yellow

This special finish steel has higher mechanical properties due to the higher carbon content. Especially adaptable for parts requiring greater strength, as bolts, axles, studs, shafts, spindles, etc. Machines smoothly, but lower speeds must be used. Can be bent and swaged, under proper heat treatment.

Tolerance: Exact size to not more than .0005" plus or minus.

ROUNDS

In our New York Plant

Size in Inches	Wt. per Ft., Lbs.	Size, Accy. & Finish Extra	Stock Lgths., Ft.
1/4	.167	21.30	20
5/16	.261	14.45	20
3/8	.376	10.25	20
7/16	.511	8.30	20
1/2	.668	8.20	20
5/8	1.043	6.55	20
11/16	1.262	6.05	20
3/4	1.502	6.05	20
13/16	1.763	5.65	20
7/8	2.045	5.65	20
15/16	2.347	5.55	20
1	2.670	5.55	20

Sizes over 1 1/16" can be selected from our Turned, Ground and Polished Shafting stock.

For Cutting Extras turn to last section of book.

AISI B1112 Identification Color: Red

A screw stock quality used for musical instruments, radio parts and other extreme precision requirements demanding utmost accuracy and polished finish. Suitable for nickel plating.

Tolerance: Exact size to not more than .0005" plus or minus.

ROUNDS

Size in Inches	Wt. per Ft., Lbs.	Size, Accy. & Finish Extra	Random Lgths., Ft.
1/8	0.042	49.75	10-12
5/32	0.065	37.75	10-12
3/16	0.094	28.25	10-12
7/32	0.128	28.25	10-12
1/4	0.167	19.75	10-12
9/32	0.211	19.75	10-12
5/16	0.261	13.25	10-12
3/8	0.376	10.05	10-12
7/16	0.511	8.45	10-12
1/2	0.668	8.35	10-12
9/16	0.845	7.20	10-12
5/8	1.04	6.75	10-12
11/16	1.26	6.20	10-12
3/4	1.50	6.20	10-12
13/16	1.76	5.85	10-12
7/8	2.04	5.85	10-12
15/16	2.35	5.75	10-12
1	2.67	5.75	10-12
1 1/16	3.01	6.10	10-12
1 1/8	3.38	5.65	10-12
1 3/16	3.77	5.60	Chgo.10-12
1 1/4	4.17	5.60	Buff.10-12
1 5/16	4.60	5.60	Chgo.10-12
1 3/8	5.05	5.60	Buff.10-12
1 7/16	5.52	5.50	Chgo.10-12
1 1/2	6.01	5.50	Chgo.10-12

Sizes over 1 1/2" can be selected from our Turned, Ground and Polished Shafting Stock.

For Cutting Extras turn to last section of book.

GROUND & POLISHED ACCURACY STOCK

AISI C1141 Identification Colors: Brown and Gold

Tolerance: Exact size to not more than .0005" plus or minus.

ROUNDS

In our Buffalo Plant or as Indicated

Size in Inches	Wt. per Ft., Lbs.	Size, Accy. & Finish Extra	Random Lgths., Ft.
3/16	0.094	33.80	10-12
1/4	0.167	21.55	10-12
5/16	0.261	14.70	10-12
3/8	0.376	10.75	10-12
7/16	0.511	8.80	10-12
1/2	0.668	8.70	10-12
5/8	1.04	7.05	10-12
11/16	1.26	6.55	10-12
3/4	1.50	6.55	10-12
7/8	2.04	6.15	10-12
15/16	2.35	6.05	10-12
1	2.67	6.05	10-12
1 1/16	3.01	6.45	Chgo. 10-12
1 1/8	3.38	6.05	Chgo. 10-12
1 3/16	3.77	6.00	Chgo. 10-12
1 1/4	4.17	6.00	Chgo. 10-12

Larger sizes to 2" may be selected from our Turned, Ground and Polished C1141.

STRESSPROOF STEEL—COLD DRAWN

Identification Colors: Orange and Brown

This is a severely worked, strain relieved cold drawn quality steel.

Strength: The minimum yield point of Stressproof 1/2" to 2" inclusive is 100,000 lbs. per square inch, with hardness about 269 Brinell; over 2", 90,000 lbs. per square inch, with hardness about 248 Brinell. Hardness and mechanical properties are uniform from outside to center.

Machinability: 76% of B1112. Surface cutting speeds of about 125 feet per minute are recommended.

Warping: Stressproof may be keyseated, splined, threaded, broached, turned, or milled with minimum distortion. Expensive straightening operations are greatly reduced or eliminated.

Surface Wear: Although easily machined, it possesses remarkable wear resisting properties. In spite of its relative softness, it has in many cases equalled the performance of case hardened steels.

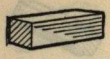
Uses: Spindles, arbors, spline shafts, feed and lead screws of all kinds, worm gears, propeller shafts, pump shafts, collets, etc.

Size Tolerances: 1" round and smaller, +.000" to −.004"; over 1" round up to and including 2", +.000" to −.006"; over 2", +.000" to −.008". Descriptive bulletin will be sent on request.

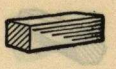
STRESSPROOF ROUNDS

In our Chicago, Detroit and Cleveland Plants

Size in Inches	Wt. per Ft., Lbs.	Size & Qual. Extra	Random Lgths., Ft.
3/8	0.376	5.75	11-14
1/2	0.668	5.05	11-14
9/16	0.845	5.00	11-14
5/8	1.04	4.55	11-14
11/16	1.26	4.40	11-14
3/4	1.50	4.40	11-14
13/16	1.76	4.40	11-14
7/8	2.04	4.40	11-14
15/16	2.35	4.30	11-14
1	2.67	4.30	11-14
1 1/16	3.01	4.30	11-14
1 1/8	3.38	4.30	11-14
1 3/16	3.77	4.30	11-14
1 1/4	4.17	4.30	11-14
1 5/16	4.60	4.30	11-14
1 3/8	5.05	4.30	11-14
1 7/16	5.52	4.20	11-14
1 1/2	6.01	4.20	11-14
1 9/16	6.52	4.20	11-14
1 5/8	7.05	4.20	11-14
1 11/16	7.60	4.20	11-14
1 3/4	8.18	4.20	11-14
1 13/16	8.77	4.20	11-14
1 7/8	9.39	4.20	11-14
1 15/16	10.02	4.30	11-14
2	10.68	4.30	11-14
2 1/8	12.06	4.30	11-14
2 1/4	13.52	4.30	11-14
2 3/8	15.06	4.30	11-14
2 7/16	15.87	4.30	11-14
2 1/2	16.69	4.30	11-14
2 5/8	18.40	4.30	11-14
2 3/4	20.20	4.30	11-14
3	24.03	4.40	11-14



COLD FINISHED SQUARES



AISI C1018 Identification Color—Green
AISI C1042 Identification Color—Yellow
AISI C1045 Identification Color—Yellow
AISI B1112 Identification Color—White

Standard Quality Cold Finished Bars are produced from Special Quality Hot Rolled Bars.

Size in Inches	Wt. per Ft., Lbs.	Size & Quality Extra			Random Lengths, Feet		
		1018	1042	1112	C1018	C1042 C1045	B1112
3/32	0.029	...	...	Special	...	...	10-12
1/8	0.052	...	...	Special	....	....	10-12
5/32	0.083	...	...	Special	....	....	10-12
3/16	0.120	...	...	6.45	....	....	10-12
7/32	0.163	...	...	6.45	....	....	10-12
1/4	0.213	4.55	...	5.20	10-12	...	10-12
9/32	0.269	...	...	5.20	....	....	10-12
5/16	0.332	3.55	...	4.20	10-12	....	10-12
11/32	0.402	...	...	4.20	....	....	10-12
3/8	0.478	2.90	...	3.55	10-12	....	10-12
7/16	0.651	2.70	...	3.35	10-12	...	10-12
1/2	0.850	2.35	2.45	3.00	10-12	10-12	10-12
9/16	1.08	2.15	...	2.80	10-12	....	10-12
5/8	1.33	2.15	2.25	2.80	10-12	10-12	10-12
11/16	1.61	1.90	...	2.55	10-12	....	10-12
3/4	1.91	1.90	2.00	2.55	10-12	10-12	10-12
13/16	2.24	1.90	...	2.55	10-12	....	10-12
7/8	2.60	1.90	2.00	2.55	10-12	10-12	10-12
15/16	2.99	1.90	...	2.55	10-12	....	10-12
1	3.40	1.90	2.00	2.55	10-12	10-12	10-12
1 1/16	3.84	1.90	...	2.55	10-12	...	10-12
1 1/8	4.30	1.90	2.00	2.55	10-12	10-12	10-12
1 3/16	4.80	1.90	...	2.55	10-12	....	10-12
1 1/4	5.31	1.90	2.00	2.55	10-12	10-12	10-12
1 5/16	5.86	1.90	...	...	10-12	....	....
1 3/8	6.43	1.90	...	...	10-12	...	...
1 7/16	7.03	1.95	...	...	10-12	....	....
1 1/2	7.65	1.95	2.05	...	10-12	10-12	....
1 9/16	8.30	1.95	...	...	10-12	....	....
1 5/8	8.98	1.95	...	...	10-12	....	....
1 11/16	9.68	1.95	...	...	10-12	...	...
1 3/4	10.41	1.95	...	...	10-12	....	....
1 13/16	11.17	1.95	...	...	10-12	....	....
1 7/8	11.95	1.95	...	...	10-12	....	....
1 15/16	12.76	1.95	...	...	10-12	....	....
2	13.60	1.95	2.05	...	10-12	Clv. 10-12	...
2 1/8	15.35	2.80	...	...	10-12	....	....
2 1/4	17.21	2.80	...	...	10-12	....	....
2 3/8	19.18	2.80	...	...	10-12	....	....
2 7/16	20.20	2.80	...	...	10-12	....	....
2 1/2	21.25	2.80	...	...	10-12	....	....
2 5/8	23.43	2.80	...	...	10-13	...	...
2 3/4	25.71	2.80	...	...	10-13	....	....
2 7/8	28.10	2.80	...	...	10-13	....	....
3	30.60	2.80	...	...	10-13	....	....
3 1/4	35.91	2.80	...	...	10-13	...	...
3 1/2	41.65	2.80	...	...	10-13	....	....
3 3/4	47.81	2.80	...	...	10-13	....	....
4	54.40	2.80	...	...	10-13	....	....
4 1/2	68.85	Special	...	...	10-13	...	...

For Cutting Extras turn to last section of book.

COLD FINISHED HEXAGONS

AISI B1112 Identification Color—White
AISI B1113 Identification Color—Orange
AISI C1115 Identification Color—Black
AISI C1117 Identification Color—Gold

Screw Steels—Bessemer and Open Hearth Grade

Size in Inches	Wt. per Ft., Lbs.	Size & Qual. Extra 1112	1113	1117	Random Lengths, Feet B1112	B1113	C1117
1/8	0.046	8.95	9.15	.....	10-12	10-12	.....
5/32	0.072	8.95	9.15	...	10-12	10-12	....
3/16	0.104	6.45	6.65	...	10-12	10-12	....
7/32	0.141	6.45	6.65	...	10-12	10-12	....
1/4	0.184	4.70	4.90	...	10-12	10-12	....
9/32	0.233	.....	4.90	.....	.....	10-12	.....
5/16	0.288	3.65	3.85	...	10-12	10-12	....
11/32	0.348	...	3.85	...	....	Chgo. 10-12	....
3/8	0.414	2.95	3.15	...	10-12	10-12	....
7/16	0.564	2.55	2.75	2.55	10-12	10-12	10-12
1/2	0.736	2.20	2.40	2.20	10-12	10-12	10-12
9/16	0.932	2.00	2.20	2.00	10-12	10-12	10-12
19/32	1.04	...	2.20	...	....	10-12	....
5/8	1.15	2.00	2.20	2.00	10-12	10-12	10-12
11/16	1.39	1.70	1.90	1.70	10-12	10-12	10-12
3/4	1.66	1.70	1.90	1.70	10-12	10-12	10-12
13/16	1.94	1.70	1.90	1.70	10-12	10-12	10-12
7/8	2.25	1.70	1.90	1.70	10-12	10-12	10-12
15/16	2.59	1.70	1.90	1.70	10-12	10-12	10-12
1	2.94	1.60	1.80	1.60	10-12	10-12	10-12
1 1/16	3.32	1.60	1.80	1.60	10-12	10-12	10-12
1 1/8	3.73	1.60	1.80	1.60	10-12	10-12	10-12
1 3/16	4.15	1.60	1.80	1.60	10-12	10-12	10-12
1 1/4	4.60	1.60	1.80	1.60	10-12	10-12	10-12
1 5/16	5.07	1.60	1.80	1.60	10-12	10-12	10-12
1 3/8	5.57	1.60	1.80	1.60	10-12	10-12	10-12
1 7/16	6.09	1.70	1.90	1.70	10-12	10-12	10-12
1 1/2	6.63	1.70	1.90	1.70	10-12	10-12	10-12
1 9/16	7.19	1.70	1.90	...	10-12	10-12	....
1 5/8	7.78	1.70	1.90	1.70	10-12	10-12	10-12
1 11/16	8.39	1.70	1.90	1.70	10-12	10-12	10-12
1 3/4	9.02	1.70	1.90	1.70	10-12	10-12	10-12
1 13/16	9.67	1.70	1.90	1.70	10-12	10-12	10-12
1 7/8	10.35	1.70	1.90	1.70	10-12	10-12	10-12
1 15/16	11.05	1.95	2.15	1.95	10-12	10-12	10-12
2	11.78	1.95	2.15	1.95	10-12	10-12	10-12
2 1/16	12.53	...	...	1.95	....	....	10-12
2 1/8	13.30	1.80*	...	1.95	10-12*	....	10-12
2 3/16	14.09	1.80*	...	1.95	10-12*	....	10-12
2 1/4	14.91	1.80*	...	1.95	10-12*	....	10-12
2 5/16	15.75	1.80*	.....	.....	10-12*	.....	.....
2 3/8	16.61	1.80*	...	1.95	10-12*	....	10-12
2 7/16	17.50	1.80*	...	1.95	10-12*	....	10-12
2 1/2	18.40	1.80*	...	1.95	10-12*	....	10-12
2 9/16	19.34	1.80*	.....	.....	10-12*	.....	.....
2 5/8	20.29	1.80*	...	1.95	10-12*	....	10-12
2 3/4	22.27	1.80*	...	1.95	10-12*	....	10-12
2 7/8	24.34	2.30*	...	2.45	10-13*	....	10-13
3	26.50	2.30*	.....	2.45	10-13*	.....	10-13
3 1/8	28.76	4.05*	...	4.20	10-13*	....	10-13
3 1/4	31.10	Special*	...	Special	10-13*	....	Det. 10-13
3 1/2	36.07	"	...	"	10-13*	....	10-13
4	47.11	"	.....	"	10-13*	.....	Cinc. 10-13

*AISI C1115 Analysis only.

See page 81 for AISI C1018, C1042 and Ledloy analyses of Cold Finished Hexagons.

COLD FINISHED HEXAGONS

AISI C1018 Identification Color—Green

AISI C1042 Identification Color—Yellow

Size in Inches	Wt. per Ft., Lbs.	Size & Qual. Extra 1018	Size & Qual. Extra 1042	Random Lengths, Feet C1018	Random Lengths, Feet C1042
1/4	0.184	4.05		10-12	
5/16	0.288	3.00		10-12	
3/8	0.414	2.30		10-12	
7/16	0.564	1.90		10-12	
1/2	0.736	1.55	1.65	10-12	10-12
9/16	0.932	1.35	1.45	10-12	Chgo. 10-12
5/8	1.15	1.35	1.45	10-12	10-12
11/16	1.39	1.05		10-12	
3/4	1.66	1.05	1.15	10-12	10-12
13/16	1.94	1.05		10-12	
7/8	2.25	1.05	1.15	10-12	10-12
15/16	2.59	1.05	1.15	10-12	Chgo. 10-12
1	2.94	.95	1.05	10-12	10-12
1 1/16	3.32	.95		10-12	
1 1/8	3.73	.95	1.05	10-12	10-12
1 1/4	4.60	.95	1.05	10-12	10-12
1 5/16	5.07	.95	1.05	Chgo. 10-12	Chgo. 10-12
1 3/8	5.57	.95	1.05	10-12	10-12
1 7/16	6.09	1.05		10-12	
1 1/2	6.63	1.05	1.15	10-12	10-12
1 5/8	7.78	1.05	1.15	10-12	10-12
1 3/4	9.02	1.05	1.15	10-12	10-12
1 13/16	9.67	1.05		10-12	
1 7/8	10.35	1.05	1.15	10-12	10-12
2	11.78	1.30	1.40	10-12	10-12
2 1/16	12.53	1.30		10-12	
2 1/8	13.30	1.30		10-12	
2 1/4	14.91	1.30		10-12	
2 3/8	16.61	1.30		10-12	
2 1/2	18.40	1.30		10-12	
2 5/8	20.30	1.30		10-12	
2 3/4	22.27	1.30		10-12	
3	26.50	1.80		10-13	

See page 80 for AISI B1112, B1113, C1115, and C1117 Cold Finished Hexagons.

LEDLOY

Identification Color: Purple

COLD FINISHED HEXAGONS

A high speed, free machining, open hearth steel. For full description, see page 76.

Size in Inches	Wt. per Ft., Lbs.	Size & Qual. Extra	Random Lgths., Ft.
1/4	0.184	5.70	10-12
5/16	0.288	4.65	10-12
3/8	0.414	3.95	10-12
7/16	0.564	3.55	10-12
1/2	0.736	3.20	10-12
9/16	0.932	3.00	10-12
5/8	1.15	3.00	10-12
3/4	1.66	2.70	10-12
7/8	2.25	2.70	Chi. 10-12
1	2.94	2.60	Chi. 10-12

COLD FINISHED FLATS

AISI C1018

Identification Color: Green

An open hearth, low carbon steel in the medium manganese content range. It has good case carburizing properties, and lends itself well to cold forming and bending operations.

This steel is highly accurate as to size, has a smooth finish with flat surfaces, square edges and good, sharp corners. Suitable for all machining operations such as drilling, milling, planing, etc. Widely used for making gauges, jigs and fixtures, and machinery and equipment parts of various kinds.

Size in Inches	Wt. per Ft., Lbs.	Size Extra	Random Lgths., Ft.
3-32x			
1/4	0.080	Special	10-12
3/8	0.120	Special	10-12
1/2	0.159	Special	10-12
5/8	0.199	Special	10-12
3/4	0.239	Special	10-12
7/8	0.279	Special	10-12
1	0.319	Special	10-12
1 1/4	0.398	Special	10-12
1 1/2	0.478	Special	10-12
1 3/4	0.558	Special	10-12
2	0.638	Special	10-12
1-8x			
3/16	0.080	Special	10-12
1/4	0.106	Special	10-12
5/16	0.133	8.70	10-12
3/8	0.159	8.70	10-12
7/16	0.186	8.70	10-12
1/2	0.213	8.70	10-12
9/16	0.239	7.70	10-12
5/8	0.266	7.70	10-12
11/16	0.292	7.70	Chgo. 10-12
3/4	0.319	6.70	10-12
7/8	0.372	6.70	10-12
1	0.425	6.70	10-12
1 1/8	0.478	5.70	10-12
1 1/4	0.531	5.70	10-12
1 3/8	0.584	5.70	10-12
1 1/2	0.638	5.70	10-12
1 5/8	0.691	5.20	10-12
1 3/4	0.744	5.20	10-12
1 7/8	0.797	5.20	10-12
2	0.850	5.20	10-12
2 1/8	0.902	5.20	10-12
2 1/4	0.956	5.20	10-12
2 3/8	1.01	5.20	10-12
2 1/2	1.06	5.20	10-12
2 3/4	1.17	5.20	10-12
3	1.28	5.20	10-12
3 1/4	1.38	5.70	10-12
3 1/2	1.49	5.70	10-12
4	1.70	5.70	10-12
4 1/2	1.91	5.70	10-12
5	2.13	5.70	10-12
6	2.55	5.70	10-12
5-32x			
1/4	0.133	Special	10-12
3/8	0.199	Special	10-12
1/2	0.266	Special	10-12
5-32x			
5/8	0.332	Special	10-12
3/4	0.398	Special	10-12
7/8	0.465	Special	10-12
1	0.531	Special	10-12
1 1/4	0.664	Special	10-12
1 1/2	0.797	Special	10-12
1 3/4	0.930	Special	10-12
2	1.06	Special	10-12
3-16x			
1/4	0.159	Special	10-12
5/16	0.199	8.70	10-12
3/8	0.239	8.70	10-12
7/16	0.279	8.70	10-12
1/2	0.319	8.70	10-12
9/16	0.359	7.70	10-12
5/8	0.398	7.70	10-12
3/4	0.478	6.70	10-12
7/8	0.558	6.70	10-12
1	0.638	6.70	10-12
1 1/8	0.717	5.70	10-12
1 1/4	0.797	5.70	10-12
1 3/8	0.877	5.70	10-12
1 1/2	0.956	5.70	10-12
1 5/8	1.04	5.20	10-12
1 3/4	1.12	5.20	10-12
1 7/8	1.20	5.20	10-12
2	1.28	5.20	10-12
2 1/4	1.43	5.20	10-12
2 1/2	1.59	5.20	10-12
2 3/4	1.75	5.20	10-12
3	1.91	5.20	10-12
3 1/4	2.07	5.70	10-12
3 1/2	2.23	5.70	10-12
3 3/4	2.39	5.70	10-12
4	2.55	5.70	10-12
4 1/2	2.87	5.70	10-12
5	3.19	5.70	10-12
6	3.83	5.70	10-12
1-4x			
5/16	0.266	6.90	10-12
3/8	0.319	6.90	10-12
7/16	0.372	6.90	10-12
1/2	0.425	6.90	10-12
9/16	0.478	6.40	10-12
5/8	0.531	6.40	10-12
11/16	0.584	6.40	10-12
3/4	0.638	4.90	10-12

(Continued)

For Cutting Extras turn to last section of book.

Ryerson St
Represer
Paul Bradl
Hugh Chal
Herbert Dr
Henry Font
Paul Fount
Joseph Mor
Ernest Phil
Murray Re
Robert Slo
Graham W
Boston Sal
Michael Co
James Cava
Bernard Du
Paul Mulva
William M
Hartford S
William Er
Winn East
Charles Fro
John Lane
Fo
are
Copyri

COLD FINISHED FLATS

AISI C1018

Size in Inches	Wt. per Ft., Lbs.	Size Extra	Random Lgths., Ft.
(Continued)			
1/4x			
13/16	0.691	4.90	10-12
7/8	0.744	4.90	10-12
15/16	0.797	4.90	10-12
1	0.850	4.90	10-12
1 1/8	0.956	3.90	10-12
1 1/4	1.06	3.90	10-12
1 3/8	1.17	3.90	10-12
1 1/2	1.28	3.90	10-12
1 5/8	1.38	2.90	10-12
1 3/4	1.49	2.90	10-12
1 7/8	1.59	2.90	10-12
2	1.70	2.90	10-12
2 1/4	1.91	2.90	10-12
2 1/2	2.13	2.90	10-12
2 3/4	2.34	2.90	10-12
3	2.55	2.90	10-12
3 1/4	2.76	4.15	10-12
3 1/2	2.98	4.15	10-12
3 3/4	3.19	4.15	10-12
4	3.40	4.15	10-12
4 1/4	3.61	4.15	10-12
4 1/2	3.83	4.15	10-12
5	4.25	4.15	10-12
5 1/2	4.68	4.15	10-12
6	5.10	4.15	10-12
8	6.80	5.95	10-12
10	8.50	5.95	10-12
12	10.20	5.95	10-12
5/16x			
3/8	0.398	6.90	10-12
7/16	0.465	6.90	10-12
1/2	0.531	6.90	10-12
9/16	0.598	6.40	10-12
5/8	0.664	6.40	10-12
11/16	0.731	6.40	10-12
3/4	0.797	4.90	10-12
13/16	0.863	4.90	10-12
7/8	0.930	4.90	10-12
1	1.06	4.90	10-12
1 1/8	1.20	3.90	10-12
1 1/4	1.33	3.90	10-12
1 3/8	1.46	3.90	10-12
1 1/2	1.59	3.90	10-12
1 5/8	1.73	2.90	10-12
1 3/4	1.86	2.90	10-12
2	2.13	2.90	10-12
2 1/4	2.39	2.90	10-12
2 1/2	2.66	2.90	10-12
2 3/4	2.92	2.90	10-12
3	3.19	2.90	10-12
3 1/4	3.45	4.15	10-12
3 1/2	3.72	4.15	10-12
3 3/4	3.98	4.15	10-12
4	4.25	4.15	10-12
4 1/2	4.78	4.15	10-12
5	5.31	4.15	10-12
5/16x			
6	6.38	4.15	10-12
8	8.50	5.95	10-12
10	10.63	5.95	10-12
12	12.75	5.95	10-12
3/8x			
7/16	0.558	5.25	10-12
1/2	0.638	5.25	10-12
9/16	0.717	5.25	10-12
5/8	0.797	5.75	10-12
11/16	0.877	5.75	10-12
3/4	0.956	3.75	10-12
7/8	1.12	3.75	10-12
1	1.28	3.75	10-12
1 1/8	1.43	3.75	10-12
1 1/4	1.59	3.75	10-12
1 3/8	1.75	3.75	10-12
1 1/2	1.91	3.75	10-12
1 5/8	2.07	2.75	10-12
1 3/4	2.23	2.75	10-12
1 7/8	2.39	2.75	10-12
2	2.55	2.75	10-12
2 1/4	2.87	2.75	10-12
2 1/2	3.19	2.75	10-12
2 3/4	3.51	2.75	10-12
3	3.83	2.75	10-12
3 1/4	4.14	3.50	10-12
3 1/2	4.46	3.50	10-12
3 3/4	4.78	3.50	10-12
4	5.10	3.50	10-12
4 1/4	5.42	3.50	10-12
4 1/2	5.74	3.50	10-12
5	6.38	3.50	10-12
5 1/2	7.01	3.50	10-12
6	7.65	3.50	10-12
8	10.20	5.35	10-12
10	12.75	5.35	10-12
12	15.30	5.35	10-12
7/16x			
1/2	0.744	5.75	10-12
9/16	0.837	5.25	10-12
5/8	0.930	5.25	10-12
11/16	1.02	5.25	10-12
3/4	1.12	3.75	10-12
7/8	1.30	3.75	10-12
1	1.49	3.75	10-12
1 1/8	1.67	3.75	10-12
1 1/4	1.86	3.75	10-12
1 3/8	2.05	3.75	10-12
1 1/2	2.23	3.75	10-12
1 3/4	2.60	2.75	10-12
2	2.98	2.75	10-12
2 1/4	3.35	2.75	10-12
2 1/2	3.72	2.75	10-12
2 3/4	4.09	2.75	Det. 10-12
3	4.46	2.75	10-12
3 1/2	5.21	3.50	10-12

(Continued)

For Cutting Extras turn to last section of book.

COLD FINISHED FLATS

AISI C1018

Size in Inches	Wt. per Ft., Lbs.	Size Extra	Random Lgths., Ft.
(Continued)			
7-16x			
4	5.95	3.50	10-12
4½	6.69	3.50	10-12
5	7.44	3.50	10-12
6	8.93	3.50	10-12
1-2x			
5/16	0.956	4.20	10-12
5/8	1.06	4.20	10-12
11/16	1.17	4.20	10-12
3/4	1.28	2.70	10-12
13/16	1.38	2.70	10-12
7/8	1.49	2.70	10-12
1	1.70	2.70	10-12
1⅛	1.91	2.70	10-12
1¼	2.13	2.70	10-12
1⅜	2.34	2.70	10-12
1½	2.55	2.70	10-12
1⅝	2.76	2.45	10-12
1¾	2.98	2.45	10-12
2	3.40	2.45	10-12
2¼	3.83	2.45	10-12
2½	4.25	2.45	10-12
2¾	4.68	2.45	10-12
3	5.10	2.45	10-12
3¼	5.53	3.45	10-12
3½	5.95	3.45	10-12
3¾	6.38	3.45	10-12
4	6.80	3.45	10-12
4¼	7.23	3.45	10-12
4½	7.65	3.45	10-12
4¾	8.08	3.45	10-12
5	8.50	3.45	10-12
5½	9.35	3.45	10-12
6	10.20	3.45	10-12
8	13.60	5.00	10-12
10	17.00	5.00	10-12
12	20.40	5.00	10-12
9-16x			
5/8	1.20	4.20	10-12
3/4	1.43	2.70	10-12
7/8	1.67	2.70	10-12
1	1.91	2.70	10-12
1⅛	2.15	2.70	10-12
1¼	2.39	2.70	10-12
1½	2.87	2.70	10-12
1¾	3.35	2.45	10-12
2	3.83	2.45	10-12
2½	4.78	2.45	10-12
3	5.74	2.45	10-12
5-8x			
11/16	1.46	3.70	10-12
3/4	1.59	2.45	10-12
13/16	1.73	2.45	10-12
7/8	1.86	2.45	10-12
15/16	1.99	2.45	10-12
1	2.13	2.45	10-12

Size in Inches	Wt. per Ft., Lbs.	Size Extra	Random Lgths., Ft.
5-8x			
1 1/16	2.26	2.45	10-12
1⅛	2.39	2.45	10-12
1 3/16	2.52	2.45	10-12
1¼	2.66	2.45	10-12
1⅜	2.92	2.45	10-12
1½	3.19	2.45	10-12
1⅝	3.45	2.45	10-12
1¾	3.72	2.45	10-12
2	4.25	2.45	10-12
2¼	4.78	2.45	10-12
2½	5.31	2.45	10-12
2¾	5.84	2.45	10-12
3	6.38	2.45	10-12
3¼	6.91	3.45	10-12
3½	7.44	3.45	10-12
3¾	7.97	3.45	10-12
4	8.50	3.45	10-12
4¼	9.03	3.45	10-12
4½	9.56	3.45	10-12
4¾	10.09	3.45	10-12
5	10.63	3.45	10-12
5½	11.69	3.45	10-12
6	12.75	3.45	10-12
7	14.88	5.00	10-12
8	17.00	5.00	10-12
10	21.25	5.00	10-12
12	25.50	5.00	10-13
11-16x			
3/4	1.75	2.45	10-12
7/8	2.05	2.45	10-12
1	2.34	2.45	10-12
1¼	2.92	2.45	10-12
1½	3.51	2.45	10-12
1¾	4.09	2.45	10-12
2	4.68	2.45	10-12
3-4x			
13/16	2.07	2.40	10-12
7/8	2.23	2.40	10-12
1	2.55	2.40	10-12
1⅛	2.87	2.40	10-12
1¼	3.19	2.40	10-12
1⅜	3.51	2.40	10-12
1½	3.83	2.40	10-12
1⅝	4.14	2.40	10-12
1¾	4.46	2.40	10-12
2	5.10	2.40	10-12
2¼	5.74	2.40	10-12
2⅜	6.06	2.40	10-12
2½	6.38	2.40	10-12
2¾	7.01	2.40	10-12
3	7.65	2.40	10-12
3¼	8.29	3.40	10-12
3½	8.93	3.40	10-12
4	10.20	3.40	10-12
4½	11.48	3.40	10-12
(Continued)			

For Cutting Extras turn to last section of book.

COLD FINISHED FLATS

AISI C1018

Size in Inches	Wt. per Ft., Lbs.	Size Extra	Random Lgths., Ft.
(Continued)			
3/4x			
5	12.75	3.40	10-12
5½	14.03	3.40	10-12
6	15.30	3.40	10-12
8	20.40	5.00	10-12
10	25.50	5.00	10-13
12	30.60	5.00	10-13
7/8x			
1	2.98	2.40	10-12
1⅛	3.35	2.40	10-12
1¼	3.72	2.40	10-12
1⅜	4.09	2.40	10-12
1½	4.46	2.40	10-12
1¾	5.21	2.40	10-12
2	5.95	2.40	10-12
2¼	6.69	2.40	10-12
2½	7.44	2.40	10-12
2¾	8.18	2.40	10-12
3	8.93	2.40	10-12
3½	10.41	3.40	10-12
4	11.90	3.40	10-12
4½	13.39	3.40	10-12
5	14.88	3.40	10-12
6	17.85	3.40	10-12
8	23.80	5.00	10-13
10	29.75	5.00	10-13
12	35.70	5.00	10-13
1x			
1⅛	3.83	2.35	10-12
1¼	4.25	2.35	10-12
1⅜	4.68	2.35	10-12
1½	5.10	2.35	10-12
1⅝	5.53	2.35	10-12
1¾	5.95	2.35	10-12
2	6.80	2.35	10-12
2¼	7.65	2.35	10-12
2½	8.50	2.35	10-12
2¾	9.35	2.35	10-12
3	10.20	2.35	10-12
3¼	11.05	3.35	10-12
3½	11.90	3.35	10-12
4	13.60	3.35	10-12
4½	15.30	3.35	10-12
5	17.00	3.35	10-12
5½	18.70	3.35	10-12
6	20.40	3.35	10-12
7	23.80	5.00	10-13
8	27.20	5.00	10-13
10	34.00	5.00	10-13
12	40.80	5.00	10-13
1-1/8x			
1¼	4.78	2.35	10-12
1⅜	5.26	2.35	10-12
1½	5.74	2.35	10-12
1⅝	6.22	2.35	10-12
1¾	6.69	2.35	10-12
1-1/8x			
2	7.65	2.35	10-12
2¼	8.61	2.35	10-12
2½	9.56	2.35	10-12
2¾	10.52	2.35	10-12
3	11.48	2.35	10-12
4	15.30	3.35	Chgo.10-12
1-1/4x			
1⅜	5.84	2.35	10-12
1½	6.38	2.35	10-12
1⅝	6.91	2.35	10-12
1¾	7.44	2.35	10-12
1⅞	7.97	2.35	Chgo.10-12
2	8.50	2.35	10-12
2¼	9.56	2.35	10-12
2½	10.63	2.35	10-12
2¾	11.69	2.35	10-12
3	12.75	2.35	10-12
3¼	13.81	3.35	10-12
3½	14.88	3.35	10-12
4	17.00	3.35	10-12
4¼	18.06	3.35	10-12
4½	19.13	3.35	10-12
5	21.25	3.35	10-12
5½	23.38	3.35	Pgh. 10-13
6	25.50	3.35	10-13
8	34.00	5.00	10-13
10	42.50	5.00	10-13
12	51.00	5.00	10-13
1-3/8x			
2	9.35	2.35	10-12
3	14.03	2.35	10-12
1-1/2x			
1⅝	8.29	2.30	10-12
1¾	8.93	2.30	10-12
2	10.20	2.30	10-12
2¼	11.48	2.30	10-12
2½	12.75	2.30	10-12
2¾	14.03	2.30	10-12
3	15.30	2.30	10-12
3¼	16.57	3.30	Clev. 10-12
3½	17.85	3.30	10-12
4	20.40	3.30	10-12
4½	22.95	3.30	10-12
5	25.50	3.30	10-13
5½	28.05	3.30	10-13
6	30.60	3.70	10-13
8	40.80	5.30	10-13
10	51.00	5.30	10-13
12	61.20	5.30	10-13
1-3/4x			
2	11.90	2.30	10-12
2¼	13.39	2.30	10-12
2½	14.88	2.30	10-12
2¾	16.36	2.30	10-12
3	17.85	2.30	10-12
3½	20.83	3.30	10-12

(Continued)

For Cutting Extras turn to last section of book.

COLD FINISHED FLATS

AISI C1018

Size in Inches	Wt. per Ft., Lbs.	Size Extra	Random Lgths., Ft.
(Continued)			
1-3/4x4	23.80	3.30	10-13
4½	26.78	3.30	10-13
5	29.75	3.30	10-13
6	35.70	3.70	10-13
2 x2¼	15.30	2.20	10-12
2½	17.00	2.20	10-12
2¾	18.70	2.20	10-12
3	20.40	2.20	10-12
3¼	22.10	3.20	10-12
3½	23.80	3.20	10-13
4	27.20	3.20	10-13
4½	30.60	3.20	10-13
5	34.00	3.20	10-13
6	40.80	3.60	10-13
8	54.40	5.30	10-13
10	68.00	5.30	10-13
12	81.60	5.30	10-13
2-1/4x2½	19.13	2.20	10-12
2¾	21.04	2.20	Clev. 10-12
3	22.95	2.20	10-12
3¼	24.86	3.20	10-13
3½	26.78	3.20	Clev. 10-13
4	30.60	3.20	10-13
4½	34.43	3.20	10-13
5	38.25	3.20	10-13
6	45.90	3.60	10-13
2-1/2x2¾	23.38	2.20	10-13
3	25.50	2.20	10-13
3¼	27.63	3.20	10-13
3½	29.75	3.20	10-13
4	34.00	3.20	10-13
4½	38.25	3.20	10-13
5	42.50	3.20	10-13
6	51.00	3.60	10-13
3 x4	40.80	3.15	10-13
5	51.00	3.15	10-13
6	61.20	3.55	10-13

For Cutting Extras turn to last section of book.

COLD DRAWN STEEL ANGLES

Cold Drawn Angles are drawn from standard size Hot Rolled Angles. As a consequence, they will run undersize approximately 1/32" to 3/64".

Size in Inches	Wt. per Ft., Lbs.	Random Lgths., Ft.	Size in Inches	Wt. per Ft., Lbs.	Random Lgths., Ft.
½x ½x⅛	.38	20-22	1¼x1¼x3/16	1.48	20-22
⅝x ⅝x⅛	.48	20-22	1½x1½x⅛	1.23	20-22
¾x ¾x⅛	.59	20-22	1½x1½x3/16	1.80	20-22
1 x ⅝x⅛	.64	20-22	2 x2 x⅛	1.65	20-22
1 x1 x⅛	.80	20-22	2 x2 x3/16	2.44	20-22
1¼x1¼x⅛	1.01	20-22	2½x2½x3/16	3.07	20-22

Ryerson St
Represe
Paul Bradl
Hugh Chal
Herbert Dr
Henry Font
Paul Fount
Joseph Mo
Ernest Phil
Murray Re
Robert Slo
Graham W
Boston Sal
Michael Co
James Cava
Bernard Di
Paul Mulva
William M
Hartford S
William Er
Winn East
Charles Fr
John Lane
Fo
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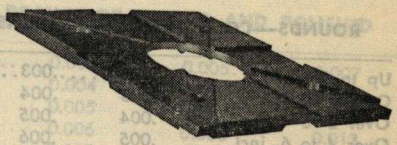
GROUND AND POLISHED STRIPPER PLATE

Hot Rolled .15-.25 Carbon Steel

Characteristics: Both Surfaces ground and polished to thickness tolerance of plus or minus .003". Edges planed instead of sheared or rolled, insuring parallel sides free from strains. Warping and distortion after machining practically eliminated.

Applications: Jigs, moulds, dies, ejector plates, cams, fixtures, machine tables, etc.

When making certain types of dies, jigs, fixtures, tools, machine tables, and other items requiring perfectly flat stock, it has been common practice to use ordinary hot rolled mild steel plate and machine to size. To a degree this has proved satisfactory except for one troublesome and ever present factor—distortion or warping of the piece following the machining operation which could only be overcome through the expenditure of additional time and labor with attendant added costs. To satisfy the demand for material when the commercial grade of hot rolled steel plate is not sufficiently straight or flat, the Moltrup Steel Company developed a ground and polished plate free from the inert strains that, when released by machining, cause warpage. This makes it possible to produce stripper plates, dies, moulds, etc., in less time and at lower cost. The first step in the production of this special plate is the careful selection of hot rolled low carbon open-hearth steel that measures up to exacting specifications. The steel is then straightened and flattened by special methods that relieve all rolling strains. The final operation consists of grinding and polishing both surfaces to a tolerance of plus or minus .003". Plates are cut to width on a planer, insuring parallel sides free from strains. The result is a smooth, accurately made steel plate which retains its true shape much better than ordinary hot rolled steel with machined surfaces. In addition to saving the costly labor of machining the over-all hot rolled steel, the user of Ryerson ground and polished steel plates avoids the loss of stock that results when an oversize plate is cut down to the exact dimensions required. Send for descriptive bulletin.



The heavy machining operations involved on this piece represent an unusually severe test of the plate to retain its original flatness. Here you have an excellent example of the ability of Ryerson ground and polished steel plates to solve your die, mould, and other tool making problems.

Size in Inches	Wt. per Ft., Lbs.	Random Lgths., Ft.
¼ x 8	6.80	5
10	8.50	Buff. 5
12	10.20	5
5/16 x 8	8.50	5
10	10.63	Buff. 5
12	12.75	5
⅜ x 8	10.20	5
10	12.75	5
12	15.30	5
½ x 8	13.60	5
10	17.00	5
12	20.40	5
14	23.80	5
⅝ x 8	17.00	5
10	21.25	5
12	25.50	5
⅝ x 14	29.75	5
¾ x 8	20.40	5
10	25.50	5
12	30.60	5
14	35.70	5
1 x 8	27.20	5
10	34.00	5
12	40.80	5
14	47.60	5
1¼ x 10	42.50	5
12	51.00	5
14	59.50	5
1½ x 10	51.00	5
12	61.20	5
14	71.40	5

STANDARD MANUFACTURING TOLERANCES

COLD FINISHED CARBON STEEL BARS AND SHAFTING

Specified Size in Inches	Variations from Size in Inches: Max. of Carbon Range .28% or less	Max. of Carbon Range Over .28% to .55% incl.	Strain Relieved All Carbons	Max. of Carbon Range Over .55% or Heat Treated (All Carbons)

All tolerances are minus

ROUNDS—COLD DRAWN OR TURNED AND POLISHED

Up to 1 incl.	.002	.003	.004	.006
Over 1 to 2, incl.	.003	.004	.006	.008
Over 2 to 4, incl.	.004	.005	.008	.010
Over 4 to 6, incl.	.005	.006	.010	.012
Over 6 to 7¾, incl.	.006	.008	.012	.016

HEXAGONS—COLD DRAWN

Up to 5/16, incl.	.002	.003	.004	.006
Over 5/16 to 1, incl.	.003	.004	.006	.008
Over 1 to 2½, incl.	.004	.005	.008	.010
Over 2½ to 3⅛, incl.	.005	.006	.010	.012

SQUARES—COLD DRAWN

Up to 5/16, incl.	.003	.004	.006	.008
Over 5/16 to 1, incl.	.004	.005	.008	.010
Over 1 to 2½, incl.	.005	.006	.010	.012
Over 2½ to 4, incl.	.006	.008	.012	.016

FLATS—COLD DRAWN

*Width in Inches

To ¾ incl.	.003	.004	.006	.008
Over ¾ to 1½, incl.	.004	.005	.008	.010
Over 1½ to 3, incl.	.005	.006	.010	.012
Over 3 to 4, incl.	.006	.008	.011	.016
Over 4 to 6, incl.	.008	.010	.012	.020
Over 6	.013			

The above tolerances provide for undersize variations only.
*The tolerances for flats apply to thickness as well as width.

Cold Drawn, Ground and Polished or Turned, Ground and Polished Rounds

Diameters	Variations from Size, Inches: Plus	Minus
Less than 2½"	0.000	0.002
2½" and Larger	0.000	0.003

STANDARD MANUFACTURING TOLERANCES

COLD FINISHED ALLOY STEELS

Specified Size in Inches	Variations from Size in Inches: Maximum Carbon Range 0.28%	Maximum Carbon Range Over 0.28 to 0.55% incl. or All Carbons Annealed	Maximum Carbon Range Over 0.55% or All Carbons Heat Treated or Stress Relieved
All tolerances are minus			
ROUNDS—COLD DRAWN OR TURNED AND POLISHED			
To 1 incl.	0.003	0.005	0.007
Over 1 to 2 incl.	0.004	0.006	0.009
Over 2 to 4 incl.	0.005	0.007	0.011
Over 4 to 6 incl.	0.006	0.008	0.013
Over 6 to 7¾	0.007	0.010	0.017
HEXAGONS—COLD DRAWN			
To 5/16 incl.	0.003	0.005	0.007
Over 5/16 to 1 incl.	0.004	0.006	0.009
Over 1 to 2½ incl.	0.005	0.007	0.011
Over 2½ to 3⅛ incl.	0.006	0.008	0.013
SQUARES—COLD DRAWN			
To 5/16 incl.	0.004	0.006	0.009
Over 5/16 to 1 incl.	0.005	0.007	0.011
Over 1 to 2½ incl.	0.006	0.008	0.013
Over 2½ to 4	0.007	0.010	0.017
FLATS—COLD DRAWN			
*Width in Inches			
To ¾ incl.	0.004	0.006	0.009
Over ¾ to 1½ incl.	0.005	0.007	0.011
Over 1½ to 3 incl.	0.006	0.008	0.013
Over 3 to 4 incl.	0.007	0.010	0.017
Over 4 to 6 incl.	0.009	0.012	0.021
Over 6	0.014		

The above tolerances provide for undersize variations only.
*The tolerances for flats apply to thickness as well as width.

Cold Drawn, Ground and Polished or Turned, Ground and Polished Rounds

Diameters	Variations from Size, Inches: Plus	Minus
Less than 2½"	0.000	0.002
2½" and larger	0.000	0.003

NEW LEANER ALLOYS & BORON STEELS

How Ryerson Alloy Stocks Will Be Affected

The alloy steels listed in this section of the Ryerson Stock List include a wide range of standard analyses which we normally have available for prompt shipment from stock. The national defense program, however, requires conservation of strategic metals. As our stocks of standard alloys become exhausted, some will have to be replaced with leaner alloys.

The steel industry, in conjunction with the very large users of alloy steel, has developed new, leaner alloy steels which will do the work of richer alloys and also accomplish the necessary reduction in the use of critical alloying elements. Some of the new steels are merely modifications of the standard analyses, using the same alloying elements but in smaller quantities. There is also another group of lean alloys which contain boron, an element in plentiful supply. Boron acts to increase the hardenability of the steel, that is, its ability to harden deeply when heat treated by quenching and tempering.

The alloy steels listed here are the new alloys developed up to the time this book was printed. From these, we have selected—as a temporary replacement—the analyses which, on a hardenability and performance basis, most closely match our normal certified alloy stocks. If and when other alternate alloys are developed to carry us through the emergency, we will continue to select for our stocks only those steels which we believe represent the maximum in value and dependability.

The Ryerson Certified Steel Plan described on page 92 gives us actual knowledge of the hardenability of every bar of alloy steel in our stocks, including the new, interim alloys. Now, more than ever, because of the changing analyses, it is important that you have hardenability test results for the individual heat of steel you use. Thus, while you can indicate an analysis or type, it is best also to specify on a hardenability basis. Then you can be sure that the alloy you get from Ryerson will meet your requirements.

Now there is added reason for you to look first to Ryerson for alloy steel because—whether you order by AISI and SAE number or specify hardenability—we are in the best position to serve you. If you need help in adapting the new alloys to your requirements please tell us. Our metallurgists are always ready and willing to work closely with you.

CHEMICAL COMPOSITION LIMITS OF NEW ALLOY STEELS

as published by the American Iron & Steel Institute, June, 1951

Tentative Standard Grades 86xx

Grade	C	Mn	Si	Ni	Cr	Mo
TS 8615	0.13/0.18	0.70/0.90	0.20/0.35	0.40/0.70	0.55/0.75	0.08/0.15
TS 8617	0.15/0.20	0.70/0.90	0.20/0.35	0.40/0.70	0.55/0.75	0.08/0.15
TS 8620	0.18/0.23	0.70/0.90	0.20/0.35	0.40/0.70	0.55/0.75	0.08/0.15
TS 8622	0.20/0.25	0.70/0.90	0.20/0.35	0.40/0.70	0.55/0.75	0.08/0.15
TS 8625	0.23/0.28	0.70/0.90	0.20/0.35	0.40/0.70	0.55/0.75	0.08/0.15
TS 8627	0.25/0.30	0.70/0.90	0.20/0.35	0.40/0.70	0.55/0.75	0.08/0.15
TS 8630	0.28/0.33	0.70/0.90	0.20/0.35	0.40/0.70	0.55/0.75	0.08/0.15
TS 8632	0.30/0.35	0.70/0.90	0.20/0.35	0.40/0.70	0.55/0.75	0.08/0.15
TS 8635	0.33/0.38	0.75/1.00	0.20/0.35	0.40/0.70	0.55/0.75	0.08/0.15
TS 8637	0.35/0.40	0.75/1.00	0.20/0.35	0.40/0.70	0.55/0.75	0.08/0.15
TS 8640	0.38/0.43	0.75/1.00	0.20/0.35	0.40/0.70	0.55/0.75	0.08/0.15
TS 8641*	0.38/0.43	0.75/1.00	0.20/0.35	0.40/0.70	0.55/0.75	0.08/0.15
TS 8642	0.40/0.45	0.75/1.00	0.20/0.35	0.40/0.70	0.55/0.75	0.08/0.15
TS 8645	0.43/0.48	0.75/1.00	0.20/0.35	0.40/0.70	0.55/0.75	0.08/0.15
TS 8647	0.45/0.50	0.75/1.00	0.20/0.35	0.40/0.70	0.55/0.75	0.08/0.15
TS 8650	0.48/0.53	0.75/1.00	0.20/0.35	0.40/0.70	0.55/0.75	0.08/0.15
TS 8653	0.49/0.55	0.75/1.00	0.20/0.35	0.40/0.70	0.65/0.85	0.08/0.15
TS 8655	0.50/0.60	0.75/1.00	0.20/0.35	0.40/0.70	0.55/0.75	0.08/0.15
TS 8660	0.55/0.65	0.75/1.00	0.20/0.35	0.40/0.70	0.55/0.75	0.08/0.15

*The sulphur content of TS 8641 is 0.040/0.060.

(Continued)

NEW ALLOY STEELS

CHEMICAL COMPOSITION LIMITS (Cont'd)

Tentative Standard Grades 81xx

Grade	C	Mn	Si	Ni	Cr	Mo
TS 8115	0.13/0.18	0.70/0.90	0.20/0.35	0.20/0.40	0.30/0.50	0.08/0.15
TS 8117	0.15/0.20	0.70/0.90	0.20/0.35	0.20/0.40	0.30/0.50	0.08/0.15
TS 8120	0.18/0.23	0.70/0.90	0.20/0.35	0.20/0.40	0.30/0.50	0.08/0.15
TS 8122	0.20/0.25	0.70/0.90	0.20/0.35	0.20/0.40	0.30/0.50	0.08/0.15
TS 8123*	0.20/0.25	0.70/0.90	0.20/0.35	0.20/0.40	0.30/0.50	0.08/0.15
TS 8125	0.23/0.28	0.70/0.90	0.20/0.35	0.20/0.40	0.30/0.50	0.08/0.15
TS 8126*	0.23/0.28	0.70/0.90	0.20/0.35	0.20/0.40	0.30/0.50	0.08/0.15
TS 8127	0.25/0.30	0.70/0.90	0.20/0.35	0.20/0.40	0.30/0.50	0.08/0.15
TS 8128*	0.25/0.30	0.70/0.90	0.20/0.35	0.20/0.40	0.30/0.50	0.08/0.15
TS 8130	0.28/0.33	0.70/0.90	0.20/0.35	0.20/0.40	0.30/0.50	0.08/0.15
TS 8132	0.30/0.35	0.70/0.90	0.20/0.35	0.20/0.40	0.30/0.50	0.08/0.15
TS 8135	0.33/0.38	0.70/0.90	0.20/0.35	0.20/0.40	0.30/0.50	0.08/0.15
TS 8137	0.35/0.40	0.70/0.90	0.20/0.35	0.20/0.40	0.30/0.50	0.08/0.15
TS 8140	0.38/0.43	0.70/0.90	0.20/0.35	0.20/0.40	0.30/0.50	0.08/0.15
TS 8142	0.40/0.45	0.70/0.90	0.20/0.35	0.20/0.40	0.30/0.50	0.08/0.15
TS 8145	0.43/0.48	0.70/0.90	0.20/0.35	0.20/0.40	0.30/0.50	0.08/0.15
TS 8147	0.45/0.50	0.70/0.90	0.20/0.35	0.20/0.40	0.30/0.50	0.08/0.15
TS 8150	0.48/0.53	0.75/1.00	0.20/0.35	0.20/0.40	0.35/0.55	0.08/0.15
TS 8155	0.51/0.58	0.75/1.00	0.20/0.35	0.20/0.40	0.35/0.55	0.08/0.15
TS 8160	0.55/0.62	0.75/1.00	0.20/0.35	0.20/0.40	0.35/0.55	0.08/0.15
TS 8165	0.60/0.70	0.75/1.00	0.20/0.35	0.20/0.40	0.35/0.55	0.08/0.15

*The sulphur content of TS 8123, 8126 and 8128 is 0.035/0.050.

Tentative Standard Grades 41xx

Grade	C	Mn	Si	Cr	Mo
TS 4130	0.28/0.33	0.45/0.65	0.20/0.35	0.90/1.20	0.08/0.15
TS 4132	0.30/0.35	0.45/0.65	0.20/0.35	0.90/1.20	0.08/0.15
TS 4135	0.33/0.38	0.75/1.00	0.20/0.35	0.90/1.20	0.08/0.15
TS 4137	0.35/0.40	0.75/1.00	0.20/0.35	0.90/1.20	0.08/0.15
TS 4140	0.38/0.43	0.80/1.05	0.20/0.35	0.90/1.20	0.08/0.15
TS 4142	0.40/0.45	0.80/1.05	0.20/0.35	0.90/1.20	0.08/0.15
TS 4145	0.43/0.48	0.80/1.05	0.20/0.35	0.90/1.20	0.08/0.15
TS 4147	0.45/0.50	0.80/1.05	0.20/0.35	0.90/1.20	0.08/0.15
TS 4150	0.48/0.53	0.80/1.05	0.20/0.35	0.90/1.20	0.08/0.15

Tentative Standard Grades 86Bxx and 94Bxx Containing Boron

Grade	C	Mn	Si	Ni	Cr	Mo
TS 86B45	0.43/0.48	0.75/1.00	0.20/0.35	0.40/0.70	0.55/0.75	0.08/0.15
TS 94B17	0.15/0.20	0.75/1.00	0.20/0.35	0.30/0.60	0.30/0.50	0.08/0.15
TS 94B20	0.17/0.22	0.75/1.00	0.20/0.35	0.30/0.60	0.30/0.50	0.08/0.15

NOTE: These steels can be expected to have 0.0005 per cent minimum boron content.

Boron Steels 80Bxx and 81Bxx

Grade	C	Mn	Si	Ni	Cr	Mo
80B15	0.12/0.18	0.60/0.90	0.20/0.35	0.20/0.40	0.15/0.35	0.08/0.15
80B17	0.14/0.20	0.60/0.90	0.20/0.35	0.20/0.40	0.15/0.35	0.08/0.15
80B20	0.17/0.23	0.60/0.90	0.20/0.35	0.20/0.40	0.15/0.35	0.08/0.15
80B25	0.21/0.28	0.60/0.90	0.20/0.35	0.20/0.40	0.15/0.35	0.08/0.15
80B30	0.27/0.34	0.55/0.80	0.20/0.35	0.20/0.40	0.15/0.35	0.08/0.15
80B35	0.32/0.39	0.65/0.95	0.20/0.35	0.20/0.40	0.15/0.35	0.08/0.15
80B40	0.37/0.45	0.70/1.00	0.20/0.35	0.20/0.40	0.15/0.35	0.08/0.15
80B45	0.42/0.50	0.70/1.00	0.20/0.35	0.20/0.40	0.15/0.35	0.08/0.15
80B50	0.47/0.55	0.70/1.00	0.20/0.35	0.20/0.40	0.25/0.50	0.08/0.15
80B55	0.50/0.60	0.70/1.00	0.20/0.35	0.20/0.40	0.30/0.55	0.08/0.15
80B60	0.55/0.65	0.70/1.00	0.20/0.35	0.20/0.40	0.30/0.55	0.08/0.15
81B35	0.32/0.39	0.70/1.00	0.20/0.35	0.20/0.40	0.30/0.55	0.08/0.15
81B40	0.37/0.45	0.70/1.00	0.20/0.35	0.20/0.40	0.30/0.55	0.08/0.15
81B45	0.42/0.50	0.70/1.00	0.20/0.35	0.20/0.40	0.30/0.55	0.08/0.15
81B50	0.47/0.55	0.75/1.05	0.20/0.35	0.20/0.40	0.35/0.60	0.08/0.15

NOTE: These steels can be expected to have 0.0005 per cent minimum boron content.

The Ryerson CERTIFIED ALLOY STEEL PLAN

How this complete alloy plan will help you . . .

For years large users of alloy steels have recognized the definite hazards involved in buying alloys . . . exhaustively inspecting, testing, and inspecting again before putting them into production.

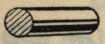
There's good reason for this extra care. Most alloys are purchased in the annealed or as-rolled condition and must be heat treated for proper strength. And since successful heat treatment depends on so many varying factors in steel making and finishing processes, serious slips are possible between purchase and performance. Then too, mixed steels often develop because one alloy looks just like another —a dangerous situation that can lead to real failure. And so, if you are to buy and use alloy steel with complete confidence and safety, you must either take all of the precautionary steps yourself or buy from a source that takes most of them for you.

Under the Ryerson Certified Alloy Steel Plan, we aid you in carrying out the best approved practices by doing these things:

1. Carefully select each alloy to meet our rigid standards for uniform high quality.
2. Verify for you the chemical analysis of each heat.
3. Spark test for uniformity to eliminate mixed steels.
4. Positively identify each alloy by color; stamped or tagged with heat symbols.
5. Test and interpret hardenability on samples of each heat.
6. Inspect before shipment to make sure it complies with your order.
7. Include a Certificate with each shipment to completely identify the steel by analysis, heat and test record. The test record guides your heat treater to safe, sure results.

With all of these error-elimination and quality control steps already taken for you when you buy alloy steel from Ryerson, you automatically eliminate costly and time consuming tests in your own shop. And as Ryerson Certified Alloys cost no more, there is no need to take a chance—to run the risk of getting the wrong alloy. So save money, speed production of finished parts by selecting your needs from the wide range of alloys shown on the following pages. If you have a question or problem at any time, our experienced metallurgists will gladly help you.

LOW CARBON—CARBURIZING



RYCASE

Identification Color: Gold

Case Hardening—Free Machining—Forging

An open hearth, low carbon, manganese, case hardening steel having a machinability rating within 10% of Bessemer screw stock. When substituted for ordinary open-hearth case hardening steels, it increases production 30% to 40%. When heat treated, Rycase possesses mechanical properties surpassed only by the more costly alloy steels. In normal state, without heat treatment, it provides a better steel due to refinements secured by additional manganese and a special method of manufacture.

Rycase fulfills in every way the demand for a highly refined case hardening steel without sacrificing machinability. Case is hard, deep, and uniform. Core is tough and ductile without being brittle. Rycase will withstand bending, broaching and other heavy deforming operations without cracking.

Rycase can be heat treated according to the general practice for case carburizing steels, and will respond satisfactorily to carburizing and cyaniding.

Average mechanical properties—Tensile Strength 71,000 lbs. per square inch; Yield Point 44,000 lbs. per square inch; Elongation in 2", 33%; Reduction of Area, 63%; Brinell Hardness 137.

Write for descriptive bulletin.

HOT ROLLED ROUNDS

Size in Inches	Wt. per Ft., Lbs.	Size & Quality Extra	Stock Lgths., Ft.
3/8	0.376	1.95	20
7/16	0.511	1.80	20
1/2	0.668	1.65	20
9/16	0.845	1.50	20
5/8	1.04	1.40	20
11/16	1.26	1.40	20
3/4	1.50	1.30	20
13/16	1.76	1.30	20
7/8	2.04	1.30	20
15/16	2.35	1.30	20
1	2.67	1.25	20
1 1/16	3.01	1.25	20
1 1/8	3.38	1.25	20
1 3/16	3.77	1.25	20
1 1/4	4.17	1.25	20
1 5/16	4.60	1.25	20
1 3/8	5.05	1.25	20
1 7/16	5.52	1.25	20
1 1/2	6.01	1.15	20
1 9/16	6.52	1.15	20
1 5/8	7.05	1.15	20
1 3/4	8.18	1.15	20
1 7/8	9.39	1.15	20
2	10.68	1.30	20
2 1/8	12.06	1.30	20
2 1/4	13.52	1.30	20
2 3/8	15.06	1.30	20
2 1/2	16.69	1.30	20
2 5/8	18.40	1.30	20
2 3/4	20.20	1.30	20
2 7/8	22.07	1.30	20
3	24.03	1.45	20
3 1/8	26.08	1.45	20
3 1/4	28.21	1.45	20
3 3/8	30.42	1.45	20
3 1/2	32.71	1.45	20
3 5/8	35.09	1.45	20
3 3/4	37.55	1.45	20
3 7/8	40.10	1.45	20
4	42.73	1.45	20
4 1/8	45.44	1.45	20
4 1/4	48.23	1.45	20
4 3/8	51.11	1.45	20
4 1/2	54.08	1.45	20
4 5/8	57.12	1.50	20
4 3/4	60.25	1.50	20
5	66.76	1.50	20
5 1/4	73.60	1.60	20
5 1/2	80.78	1.60	20
5 3/4	88.29	1.70	20
6	96.13	1.70	20
6 1/4	104.31	1.80	20
6 1/2	112.82	1.80	20
6 3/4	121.67	1.90	20
7	130.85	1.90	20
7 1/4	140.36	1.90	20
7 1/2	150.21	1.90	20
7 3/4	160.39	2.05	20
8	170.90	2.25	20
*8 1/4	181.75	Special	10-14
*8 1/2	192.93	"	10-14
*8 3/4	204.45	"	10-14
*9	216.30	"	10-14
*9 1/4	228.48	"	10-14
*9 1/2	241.00	"	10-14
*9 3/4	253.85	"	10-14
*10	267.04	"	10-14
*10 1/4	280.60	"	10-14
*10 1/2	294.41	"	10-14
*10 3/4	308.60	"	10-14
*11	323.11	"	10-14

*These sizes are smooth forged oversize to allow for finishing to the sizes shown. Weights are estimated for finished sizes.

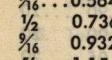
LOW CARBON—CARBURIZING
RYCASE

Identification Color: Gold

COLD FINISHED ROUNDS

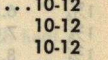
All sizes 2 15/16" and larger are Turned and Polished.

Size in Inches	Wt. per Ft., Lbs.	Size & Qual. Extra	Random Lgths., Ft.
3/16	0.094	3.85	10-12
1/4	0.167	2.85	10-12
9/32	0.211	2.85	Buff. 10-12
5/16	0.261	2.60	10-12
11/32	0.316	2.60	Chgo. 10-12
3/8	0.376	2.40	10-12
7/16	0.511	2.30	10-12
1/2	0.668	2.20	10-12
9/16	0.845	2.15	10-12
5/8	1.04	1.70	10-12
11/16	1.26	1.55	10-12
3/4	1.50	1.55	10-12
13/16	1.76	1.55	10-12
7/8	2.04	1.55	10-12
15/16	2.35	1.45	10-12
1	2.67	1.45	10-12
1 1/16	3.01	1.45	10-12
1 1/8	3.38	1.45	10-12
1 3/16	3.77	1.45	10-12
1 1/4	4.17	1.45	10-12
1 5/16	4.60	1.45	10-12
1 3/8	5.05	1.45	10-12
1 7/16	5.52	1.35	10-12
1 1/2	6.01	1.35	10-12
1 9/16	6.52	1.35	10-12
1 5/8	7.05	1.35	10-12
1 11/16	7.60	1.35	10-12
1 3/4	8.18	1.35	10-12
1 13/16	8.77	1.35	10-12
1 7/8	9.39	1.35	10-12
1 15/16	10.02	1.45	10-12
2	10.68	1.45	10-12
2 1/16	11.36	1.45	10-12
2 1/8	12.06	1.45	10-12
2 3/16	12.78	1.45	10-12
2 1/4	13.52	1.45	10-12
2 5/16	14.28	1.45	10-12
2 3/8	15.06	1.45	10-12
2 7/16	15.87	1.45	10-12
2 1/2	16.69	1.45	10-12
2 9/16	17.53	1.45	10-12
2 5/8	18.40	1.45	10-12
2 11/16	19.29	1.45	10-12
2 3/4	20.20	1.45	10-12
2 13/16	21.12	1.45	10-12
2 7/8	22.07	1.45	10-12
2 15/16	23.04	2.05	10-12
3	24.03	2.05	10-13
3 1/16	25.05	2.15	10-13
3 1/8	26.08	2.15	10-13
3 3/16	27.13	2.15	Chgo. 10-13
3 1/4	28.21	2.15	10-13
3 5/16	29.30	2.15	10-13
3 3/8	30.42	2.15	10-13
3 7/16	31.55	2.25	Buff. 10-13
3 1/2	32.71	2.25	10-13
3 5/8	35.09	2.25	10-13
3 3/4	37.55	2.25	10-13
3 7/8	40.10	2.40	10-13
4	42.73	2.40	10-13
4 1/8	45.44	2.40	10-13
4 1/4	48.23	2.50	10-13
4 3/8	51.11	2.50	10-13
4 1/2	54.08	2.60	10-13
4 5/8	57.12	2.60	10-13
4 3/4	60.25	2.60	10-13
4 7/8	63.52	2.60	10-13
5	66.76	2.70	10-13
5 1/4	73.60	2.70	10-13
5 1/2	80.78	3.20	10-13
5 3/4	88.29	3.20	10-13
6	96.13	3.65	10-13



COLD FINISHED HEXAGONS

All sizes are Cold Drawn.



7/16	0.564	2.55	10-12
1/2	0.736	2.20	10-12
9/16	0.932	2.00	10-12
5/8	1.15	2.00	10-12
11/16	1.39	1.70	10-12
3/4	1.66	1.70	10-12
13/16	1.94	1.70	10-12
7/8	2.25	1.70	10-12
15/16	2.59	1.70	10-12
1	2.94	1.60	10-12
1 1/16	3.32	1.60	10-12
1 1/8	3.73	1.60	10-12
1 3/16	4.15	1.60	10-12
1 1/4	4.60	1.60	10-12
1 5/16	5.07	1.60	10-12
1 3/8	5.57	1.60	10-12
1 7/16	6.09	1.70	10-12
1 1/2	6.63	1.70	10-12
1 5/8	7.78	1.70	10-12
1 11/16	8.39	1.70	10-12
1 3/4	9.02	1.70	10-12
1 13/16	9.67	1.70	10-12
1 7/8	10.35	1.70	10-12
1 15/16	11.05	1.95	10-12
2	11.78	1.95	10-12
2 1/16	12.53	1.95	10-12
2 1/8	13.30	1.95	10-12
2 3/16	14.09	1.95	10-12
2 1/4	14.91	1.95	10-12
2 3/8	16.61	1.95	10-12
2 7/16	17.50	1.95	10-12
2 1/2	18.40	1.95	10-12
2 5/8	20.29	1.95	10-12
2 3/4	22.73	1.95	10-12
2 7/8	24.34	2.45	10-13
3	26.50	2.45	10-13
3 1/8	28.76	4.20	10-13
3 1/4	31.10	Spec.	Det. 10-13
3 1/2	36.07	Spec.	10-13
4	47.11	Spec.	Cinc. 10-13

LOW CARBON—CARBURIZING ALLOYS

AISI 4615 AISI 4620 AISI 8620

Identification Colors: 4615—Yellow and White; 4620—Yellow and White; 8620—Pink and Brown

Machine Straightened

4615-4620 Nickel Molybdenum, and 8620 Chrome Nickel Molybdenum, fine-grained low carbon alloy steels, are not annealed and are primarily designed for case hardening. They provide parts with a hard surface combined with a tough ductile core. Applications include gears, shafts, cams, spindles, etc.

HOT ROLLED ROUNDS

Size in Inches	Wt. per Ft., Lbs.	Size Extra*	Random Lengths, Feet		
			4615	4620	8620
½	0.668	1.65	14-20	14-20	14-20
⅝	1.04	1.25	14-20	14-20	14-20
¾	1.50	1.05	14-20	14-20	14-20
⅞	2.04	1.05	14-20	14-20	14-20
1	2.67	1.05	14-20	14-20	14-20
1⅛	3.38	.85	14-20	14-20	14-20
1¼	4.17	.85	14-20	14-20	14-20
1⅜	5.05	.85	14-20	14-20	14-20
1½	6.01	.80	14-20	14-20	14-20
1⅝	7.05	.70	14-20	14-20	14-20
1¾	8.18	.70	14-20	14-20	14-20
1⅞	9.39	.70	14-20	14-20	14-20
2	10.68	.70	14-20	14-20	14-20
2⅛	12.06	.70	14-20	14-20	14-20
2¼	13.52	.70	14-20	14-20	14-20
2⅜	15.06	.70	14-20	14-20	14-20
2½	16.69	.70	14-20	14-20	14-20
2⅝	18.40	.80	14-20	14-20	14-20
2¾	20.20	.80	14-20	14-20	14-20
2⅞	22.07	.80	14-20	14-20	14-20
3	24.03	.80	14-20	14-20	14-20
3⅛	26.08	.80	14-20	14-20	14-20
3¼	28.21	.80	14-20	14-20	14-20
3⅜	30.42	.80	14-20	14-20	14-20
3½	32.71	.80	14-20	14-20	14-20
3⅝	35.09	.80	14-20	14-20	14-20
3¾	37.55	.80	14-20	14-20	14-20
4	42.73	.80	14-20	14-20	14-20
4¼	48.23	.80	14-20	14-20	14-20
4½	54.08	.80	14-20	14-20	14-20
4¾	60.25	.80	14-20	14-20	14-20
5	66.76	.80	14-20	14-20	14-20
5¼	73.60	.80	14-20	14-20	14-20
5½	80.78	.80	14-20	14-20	14-20
5¾	88.29	.80	14-20	14-20	14-20
6	96.13	.80	14-20	14-20	14-20
6¼	104.31	.90	14-20	14-20	14-20
6½	112.82	.90	14-20	14-20	14-20
6¾	121.67	1.00	14-20	14-20	14-20
7	130.85	1.00	14-20	14-20	14-20
7¼	140.36	1.00	14-20	14-20	14-20
7½	150.21	1.00	14-20	14-20	14-20
7¾	160.39	1.10	14-20	14-20	14-20
8	170.90	1.30	14-20	14-20	14-20

*Includes Machine Straightening.

For Cutting Extras turn to last section of book.

LOW CARBON—CARBURIZING ALLOYS

AISI 4615 AISI 4620 AISI 8620

Identification Colors: 4615—Yellow and White; 4620—Yellow and White; 8620—Pink and Brown

Machine Straightened

COLD FINISHED ROUNDS

Sizes 2 15/16" and larger are turned and polished.

Size in Inches	Wt. per Ft., Lbs.	Size Extra	Random Lengths, Feet		
			4615	4620	8620
1/4	0.167	4.00	10-12	10-12	10-12
5/16	0.261	3.20	10-12	10-12	10-12
3/8	0.376	2.55	10-12	10-12	10-12
5/16	0.511	2.30	10-12	10-12	10-12
1/2	0.668	2.10	10-12	10-12	10-12
9/16	0.845	1.85	10-12	10-12	10-12
5/8	1.04	1.55	10-12	10-12	10-12
11/16	1.26	1.35	10-12	10-12	10-12
3/4	1.50	1.35	10-12	10-12	10-12
13/16	1.76	1.20	10-12	10-12	10-12
7/8	2.04	1.20	10-12	10-12	10-12
15/16	2.35	1.20	10-12	10-12	10-12
1	2.67	1.20	10-12	10-12	10-12
1 1/16	3.01	1.20	10-12	10-12	10-12
1 1/8	3.38	1.20	10-12	10-12	10-12
1 3/16	3.77	1.20	10-12	10-12	10-12
1 1/4	4.17	1.20	10-12	10-12	10-12
1 5/16	4.60	1.20	10-12	10-12	10-12
1 3/8	5.05	1.20	10-12	10-12	10-12
1 7/16	5.52	1.20	10-12	10-12	10-12
1 1/2	6.01	1.15	10-12	10-12	10-12
1 9/16	6.52	1.15	10-12	10-12	10-12
1 5/8	7.05	1.15	10-12	10-12	10-12
1 11/16	7.60	1.15	10-12	10-12	10-12
1 3/4	8.18	1.15	10-12	10-12	10-12
1 7/8	9.39	1.15	10-12	10-12	10-12
1 15/16	10.02	1.15	10-12	10-12	10-12
2	10.68	1.15	10-12	10-12	10-12
2 1/8	12.06	1.15	10-12	10-12	10-12
2 1/4	13.52	1.15	10-12	10-12	10-12
2 3/8	15.06	1.15	10-12	10-12	10-12
2 1/2	16.69	1.25	10-12	10-12	10-12
2 5/8	18.40	1.25	10-12	10-12	10-12
2 3/4	20.20	1.25	10-12	10-12	10-12
2 7/8	22.07	1.25	10-12	10-12	10-12
2 15/16	23.04	1.75	....	....	10-12
3	24.03	1.75	10-12	10-12	10-12
3 1/4	28.21	1.85	10-12	10-12	10-12
3 1/2	32.71	1.90	10-12	10-12	10-12
3 3/4	37.55	1.90	10-12	10-12	10-12
4	42.73	2.05	10-12	10-12	10-12
4 1/4	48.23	2.15	10-12	10-12	10-12
4 1/2	54.08	2.20	10-12	10-12	10-12
4 3/4	60.25	2.20	10-12	10-12	10-12
5	66.76	2.20	10-12	10-12	10-12

For Cutting Extras turn to last section of book.

MEDIUM CARBON—AS ROLLED

RYTENSE A.A.

Identification Colors: Brown and Gold

Free Machining—Forging—Heat Treatable

Rytense AA is a medium carbon manganese steel. Special methods of melting are used to assure a consistently uniform, high quality product. Close quality control at every step in the processing operations produces bars that are sound and free of all injurious defects. The composition of Rytense AA is such that the following desirable characteristics are combined in this one, general purpose steel:

1. Strength is about twice that of ordinary low carbon steel.
2. Machinability rating is 75% of AISI B1112, the standard free cutting screw steel.
3. May be heat treated to develop high hardness and much greater strength.

Typical applications include motor and generator shafts, axles, spindles, gears, pump shafts, tie rods, studs, bolts, etc.

Average mechanical properties—Tensile Strength 97,000 lbs. per square inch; Yield Point 60,000 lbs. per square inch; Elongation in 2", 25%; Reduction of Area, 51%; Brinell Hardness 201.

Write for descriptive bulletin.

HOT ROLLED ROUNDS

Size in Inches	Wt. per Ft., Lbs.	Size & Quality Extra	Stock Lgths., Ft.
3/8	0.376	2.10	20
7/16	0.511	1.95	20
1/2	0.668	1.80	20
9/16	0.845	1.65	20
5/8	1.04	1.55	20
11/16	1.26	1.55	20
3/4	1.50	1.45	20
13/16	1.76	1.45	20
7/8	2.04	1.45	20
15/16	2.35	1.45	20
1	2.67	1.40	20
1 1/16	3.01	1.40	20
1 1/8	3.38	1.40	20
1 3/16	3.77	1.40	20
1 1/4	4.17	1.40	20
1 5/16	4.60	1.40	20
1 3/8	5.05	1.40	20
1 7/16	5.52	1.40	20
1 1/2	6.01	1.30	20
1 9/16	6.52	1.30	20
1 5/8	7.05	1.30	20
1 11/16	7.60	1.30	20
1 3/4	8.18	1.30	20
1 13/16	8.77	1.30	20
1 7/8	9.39	1.30	20
1 15/16	10.02	1.30	20
2	10.68	1.45	20
2 1/8	12.06	1.45	20
2 1/4	13.52	1.45	20
2 3/8	15.06	1.45	20
2 7/16	15.87	1.45	20
2 1/2	16.69	1.45	20
2 5/8	18.40	1.45	20
2 3/4	20.20	1.45	20
2 7/8	22.07	1.45	20
3	24.03	1.60	20
3 1/8	26.08	1.60	20
3 1/4	28.21	1.60	20
3 3/8	30.42	1.60	20
3 1/2	32.71	1.60	20
3 5/8	35.09	1.60	20
3 3/4	37.55	1.60	20
3 7/8	40.10	1.60	20
4	42.73	1.60	20
4 1/8	45.44	1.60	20
4 1/4	48.23	1.60	20
4 3/8	51.11	1.60	20
4 1/2	54.08	1.60	20
4 5/8	57.12	1.65	20
4 3/4	60.25	1.65	20
5	66.76	1.65	20
5 1/4	73.60	1.75	20
5 1/2	80.78	1.75	20
5 3/4	88.29	1.85	20
6	96.13	1.85	20
6 1/4	104.31	1.95	20
6 1/2	112.82	1.95	20
6 3/4	121.67	2.05	20
7	130.85	2.05	20
7 1/4	140.36	2.05	20
7 1/2	150.21	2.05	20
7 3/4	160.39	2.20	20
8	170.90	2.40	20
*8 1/4	181.70	Special	12
*8 1/2	192.93	"	10-14
*8 3/4	204.40	"	12
*9	216.30	"	10-14
*9 1/4	228.50	"	12
*9 1/2	241.00	"	10-14
*9 3/4	253.00	"	12
*10	267.04	"	10-14
*10 1/4	280.06	"	10-14
*10 1/2	294.41	"	10-14
*10 3/4	308.60	"	10-14
*11	323.11	"	10-14

*These sizes are smooth forged oversize to allow for finishing to the sizes shown. Weights are estimated for finished sizes.

For cutting extras turn to last section of book.

MEDIUM CARBON—AS ROLLED

RYTENSE A.A.

Identification Colors: Brown and Gold

Free Machining—Heat Treatable

COLD FINISHED ROUNDS

Sizes 2 15/16" and larger are Turned and Polished.

Size in Inches	Wt. per Ft., Lbs.	Size & Qual. Extra	Random Lgths., Ft.
1/4	0.167	2.80	10-12
5/16	0.261	2.55	10-12
3/8	0.376	2.35	10-12
7/16	0.511	2.25	10-12
1/2	0.668	2.15	10-12
9/16	0.845	2.10	10-12
5/8	1.04	1.65	10-12
11/16	1.26	1.50	10-12
3/4	1.50	1.50	10-12
13/16	1.76	1.50	10-12
7/8	2.04	1.50	10-12
15/16	2.35	1.40	10-12
1	2.67	1.40	10-12
1 1/8	3.38	1.40	10-12
1 3/16	3.77	1.40	10-12
1 1/4	4.17	1.40	10-12
1 5/16	4.60	1.40	10-12
1 3/8	5.05	1.40	10-12
1 7/16	5.52	1.30	Buff. 18-20
1 1/2	6.01	1.30	10-12
1 9/16	6.52	1.30	Buff. 10-12
1 5/8	7.05	1.30	10-12
1 11/16	7.60	1.30	Buff. 18-20
1 3/4	8.18	1.30	10-12
1 7/8	9.39	1.30	10-12
1 15/16	10.02	1.40	Buff. 18-20
2	10.68	1.40	10-12
2 1/8	12.06	1.40	10-12
2 1/4	13.52	1.40	10-12
2 3/8	15.06	1.40	10-12
2 7/16	15.87	1.40	Buff. 18-20
2 1/2	16.69	1.40	10-12
2 5/8	18.40	1.40	Buff. 10-12
2 11/16	19.29	1.40	Buff. 18-20
2 3/4	20.20	1.40	Buff. 10-12
2 7/8	22.07	1.40	Clev. 10-12
2 15/16	23.04	2.10	Buff. 18-20
3	24.03	2.10	10-13
3 1/8	26.08	2.20	Clev. 10-12
3 1/4	28.21	2.20	Clev. 10-12
3 1/2	32.71	2.30	Clev. 10-12
3 3/4	37.55	2.30	Clev. 10-12
3 15/16	41.40	2.45	Cinc. 10-13
4	42.73	2.45	Clev. 10-13

For Cutting Extras turn to last section of book.

GROUND AND POLISHED ACCURACY STOCK

Tolerance: Exact size to not more than .0005" plus or minus

In our Buffalo Plant or as indicated.

Size in Inches	Wt. per Ft., Lbs.	Size, Accy. & Finish Extra	Random Lgths., Ft.
3/16	0.094	$33.80	10-12
1/4	0.167	21.55	10-12
5/16	0.261	14.70	10-12
3/8	0.376	10.75	10-12
7/16	0.511	8.80	10-12
1/2	0.668	8.70	10-12
5/8	1.04	7.05	10-12
11/16	1.26	6.55	10-12
3/4	1.50	$6.55	10-12
7/8	2.04	6.15	10-12
15/16	2.35	6.05	10-12
1	2.67	6.05	10-12
1 1/16	3.01	6.45	Chgo.10-12
1 1/8	3.38	6.05	Chgo.10-12
1 3/16	3.77	6.00	Chgo.10-12
1 1/4	4.17	6.00	Chgo.10-12

MEDIUM CARBON ALLOYS

AISI 4140 AISI 8642 ANNEALED AISI 3140 AISI E4340

Identification Colors: 4140—Blue and Green; 8642—Black and Orange; 3140—Blue and Red; E4340—Purple and Aluminum

Machine Straightened†

4140 Chrome Molybdenum, 8642 Chrome Nickel Molybdenum, 3140 Chrome Nickel, and Electric Furnace 4340 Chrome Nickel Molybdenum are fine-grained medium carbon alloy steels. 4140, 8642 and 3140 are annealed to a predominantly lamellar pearlitic structure, which is best suited for general machining operations. E4340 is annealed to provide best machinability. Because of its high alloy content, it possesses deeper hardenability than steels of lesser alloy content.

All of the steels in this group are designed for direct hardening and the result of a hardenability test for each heat or melt is furnished with every shipment. Applications include gears, pins, clutch plates, tools, axle shafts, bolts, spindles, machinery parts, etc.

HOT ROLLED ROUNDS

Size in Inches	Wt. per Ft., Lbs.	Size Extra	Random Lengths, Feet 4140	8642	3140	E4340
⅜	0.376	1.55	18-20			
½	0.668	1.15	14-16	14-16	18-20	....
⅝	1.04	.75	14-16	14-16	18-20	....
¾	1.50	.55	14-16	14-16	18-20	Chgo. 14-16
⅞	2.04	.55	14-16	14-16	18-20	Chgo. 14-16
1	2.67	.55	14-16	14-16	18-20	Chgo. 14-16
1⅛	3.38	.55	14-16	14-16	18-20	Chgo. 14-16
1¼	4.17	.55	14-16	14-16	18-20	Chgo. 14-16
1⅜	5.05	.55	14-16	14-16	18-20	Chgo. 14-16
1½	6.01	.50	14-16	14-16	18-20	Chgo. 14-16
1⅝	7.05	.50	14-16	14-16	18-20	Chgo. 14-16
1¾	8.18	.50	14-16	14-16	18-20	Chgo. 14-16
1⅞	9.39	.50	14-16	14-16	18-20	Chgo. 14-16
2	10.68	.50	14-16	14-16	18-20	14-16
2⅛	12.06	.50	14-16	14-16	18-20	14-16
2¼	13.52	.50	14-16	14-16	18-20	14-16
2⅜	15.06	.50	14-16	14-16	18-20	14-16
2½	16.69	.50	14-16	14-16	18-20	14-16
2⅝	18.40	.60	14-16	14-16	18-20	14-16
2¾	20.20	.60	14-16	14-16	18-20	14-16
2⅞	22.07	.60	14-16	....	18-20	14-16
3	24.03	.60	14-16	14-16	18-20	14-16
3⅛	26.08	.60	14-17	....	....	14-17
3¼	28.21	.60	14-17	13-16	17-20	14-17
3⅜	30.42	.60	....	....	17-20	....
3½	32.71	.60	14-17	13-16	17-20	14-17
3⅝	35.09	.60	14-17			
3¾	37.55	.60	14-17	13-16	17-20	14-17
3⅞	40.10	.60	14-17	....	....	....
4	42.73	.60	14-17	13-16	17-20	14-17
4⅛	45.44	.60	Cinc. 17-20			
4¼	48.23	.60	14-17	13-16	17-20	14-17
4½	54.08	.60	14-17	13-16	17-20	14-17
4¾	60.25	.60	14-17	13-16	17-20	14-17
5	66.76	.60	14-17	13-16	17-20	14-17
5¼	73.60	.60	14-17		17-20	14-17
5½	80.78	.60	14-17	....	17-20	14-17
5¾	88.29	.60	14-17	....	17-20	13-16
6	96.13	.60	14-17	....	17-20	14-17
6¼	104.31	.70	14-17	....	17-20	....
6½	112.82	.70	14-17		17-20	
6¾	121.67	.80	17-20	....	17-20	....
7	130.85	.80	14-17	....	17-20	....
7¼	140.36	.80	17-20	....	17-20	....
7½	150.21	.80	14-17	....	17-20	....
7¾	160.39	.90	17-20	....	17-20	....
8	170.90	1.10	14-17		17-20	

†Straightening extra included in warehouse base price.

MEDIUM CARBON ALLOYS

ANNEALED

AISI 4140 AISI 8642 AISI 3140

Identification Colors: 4140—Blue and Green; 8642—Black and Orange; 3140—Blue and Red

Machine Straightened
COLD FINISHED ROUNDS

All sizes 2 15/16" and larger are Turned and Polished

Size in Inches	Wt. per Ft., Lbs.	Size Extra	Random Lengths, Feet 4140	8642	3140
1/4	0.167	4.00	10-12	10-12	
5/16	0.261	3.20	10-12	10-12	....
3/8	0.376	2.55	10-12	10-12	10-12
7/16	0.511	2.30	10-12	10-12	10-12
1/2	0.668	2.10	10-12	10-12	10-12
9/16	0.845	1.85	10-12	10-12	10-12
5/8	1.04	1.55	10-12	10-12	10-12
11/16	1.26	1.35	10-12	10-12	10-12
3/4	1.50	1.35	10-12	10-12	10-12
13/16	1.76	1.20	10-12	10-12	10-12
7/8	2.04	1.20	10-12	10-12	10-12
15/16	2.35	1.20	10-12	10-12	10-12
1	2.67	1.20	10-12	10-12	10-12
1 1/16	3.01	1.20	10-12	....	10-12
1 1/8	3.38	1.20	10-12	10-12	10-12
1 3/16	3.77	1.20	10-12	....	10-12
1 1/4	4.17	1.20	10-12	10-12	10-12
1 5/16	4.60	1.20	10-12	....	10-12
1 3/8	5.05	1.20	10-12	10-12	10-12
1 7/16	5.52	1.20	10-12	....	10-12
1 1/2	6.01	1.15	10-12	10-12	10-12
1 9/16	6.52	1.15	10-12	....	....
1 5/8	7.05	1.15	10-12	10-12	10-12
1 11/16	7.60	1.15	10-12	....	....
1 3/4	8.18	1.15	10-12	10-12	10-12
1 7/8	9.39	1.15	10-12	10-12	10-12
1 15/16	10.02	1.15	10-12	....	....
2	10.68	1.15	10-12	10-12	10-12
2 1/16	11.36	1.15	10-12	....	....
2 1/8	12.06	1.15	10-12	10-12	10-12
2 3/16	12.78	1.15	10-12	....	....
2 1/4	13.52	1.15	10-12	10-12	10-12
2 3/8	15.06	1.15	10-12	10-12	....
2 7/16	15.87	1.15	10-12	10-12	....
2 1/2	16.69	1.25	10-12	10-12	10-12
2 5/8	18.40	1.25	10-12	10-12	....
2 3/4	20.20	1.25	10-12	10-12	10-12
2 7/8	22.07	1.25	10-12	10-12	....
2 15/16	23.04	1.85	10-12	....	....
3	24.03	1.85	10-12	10-12	10-12
3 1/4	28.21	1.95	10-12	....	....
3 1/2	32.71	2.00	10-12	....	....
3 3/4	37.55	2.00	10-12	....	....
4	42.73	2.15	10-12	....	....
4 1/4	48.23	2.25	Clev. 10-12	....	....
4 1/2	54.08	2.30	Clev. 10-12	....	....
4 3/4	60.25	2.30	Clev. 10-12	....	....
5	66.76	2.30	Clev. 10-12	....	....

MEDIUM CARBON ALLOYS

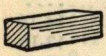
AISI 4140 ANNEALED AISI 8642

Identification Colors: 4140—Blue and Green; 8642—Black and Orange

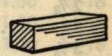
Machine Straightened COLD FINISHED HEXAGONS

Size in Inches	Wt. per Ft., Lbs.	Size Extra	Random Lengths, Feet 4140	8642
3/8	0.414	3.55	10-12	
7/16	0.564	2.85	10-12	10-12
1/2	0.736	2.20	10-12	10-12
9/16	0.932	2.20	10-12	10-12
5/8	1.15	1.70	10-12	10-12
11/16	1.39	1.45	10-12	....
3/4	1.66	1.45	10-12	10-12
13/16	1.94	1.45	10-12	10-12
7/8	2.25	1.45	10-12	10-12
15/16	2.59	1.45	10-12	10-12
1	2.94	1.35	10-12	10-12
1 1/16	3.32	1.35	10-12	10-12
1 1/8	3.73	1.35	10-12	10-12
1 3/16	4.15	1.35	10-12	....
1 1/4	4.60	1.35	10-12	10-12
1 5/16	5.07	1.35	10-12	....
1 3/8	5.57	1.35	10-12	10-12
1 7/16	6.09	1.35	10-12	10-12
1 1/2	6.63	1.35	10-12	10-12
1 5/8	7.78	1.50	10-12	10-12
1 3/4	9.02	1.50	10-12	10-12
1 13/16	9.67	1.50	10-12	....
1 7/8	10.36	1.50	10-12	10-12
2	11.78	1.50	10-12	10-12
2 1/4	14.91	1.50	10-12	....
2 3/8	16.61	1.55	10-12	....
2 1/2	18.40	1.55	10-12	

For Cutting Extras turn to last section of book.



AISI 4140—ANNEALED COLD FINISHED SQUARES



Size in Inches	Wt. per Ft., Lbs.	Size Extra	Random Lgths., Feet
1/4	0.212	4.55	10-12
5/16	0.332	4.00	10-12
3/8	0.478	3.25	10-12
7/16	0.651	2.95	10-12
1/2	0.850	2.60	10-12
9/16	1.08	2.20	10-12
5/8	1.33	2.20	10-12
11/16	1.61	1.85	10-12
3/4	1.91	1.85	10-12
7/8	2.60	1.85	10-12
1	3.40	1.85	10-12
1 1/8	4.30	1.85	10-12
1 1/4	5.31	1.85	10-12
1 3/8	6.43	1.85	10-12
1 1/2	7.65	1.85	10-12
1 3/4	10.41	1.85	10-12
2	13.60	1.85	10-12

For Cutting Extras turn to last section of book.

MEDIUM CARBON ALLOYS

AISI 4150 ANNEALED AISI 6150

Identification Colors: 4150—Yellow and Aluminum; E6150—Pink

Machine Straightened†

4150 Chrome Molybdenum and E6150 Chrome Vanadium are fine-grained medium carbon alloys in the .50 Carbon Range. These alloy steels are annealed to provide best attainable machinability. These .50 carbon alloys are used where the requirements of high hardness, tensile strength and depth of penetration are sufficiently important to warrant less emphasis on toughness and ductility. General uses include: gears, arbors, heavy duty shafts and axles, mandrels, clutch parts, heavy duty bolts, rollers, etc. The result of a hardenability test for each heat or melt is furnished with every shipment.

HOT ROLLED ROUNDS

Size in Inches	Wt. per Ft., Lbs.	Size Extra	Random Lengths, Feet 4150	Random Lengths, Feet E6150*
½	0.668	1.15		14-16
⅝	1.04	.75	....	14-16
¾	1.50	.55	18-20	14-16
⅞	2.04	.55	18-20	14-16
1	2.67	.55	18-20	14-16
1⅛	3.38	.55	18-20	14-16
1¼	4.17	.55	18-20	14-16
1⅜	5.05	.55	18-20	14-16
1½	6.01	.50	18-20	14-16
1⅝	7.05	.50	18-20	14-16
1¾	8.18	.50	18-20	14-16
1⅞	9.39	.50	18-20	14-16
2	10.68	.50	18-20	14-16
2⅛	12.06	.50	18-20	14-16
2¼	13.52	.50	18-20	14-16
2⅜	15.06	.50	18-20	14-16
2½	16.69	.50	18-20	14-16
2⅝	18.40	.60	18-20	14-16
2¾	20.20	.60	18-20	14-16
2⅞	22.07	.60	18-20	....
3	24.03	.60	18-20	14-16
3⅛	26.08	.60	17-20	13-16
3¼	28.21	.60	17-20	13-16
3⅜	30.42	.60	....	13-16
3½	32.71	.60	17-20	13-16
3⅝	35.09	.60	17-20	....
3¾	37.55	.60	17-20	13-16
4	42.73	.60	17-20	13-16
4¼	48.23	.60	17-20	13-16
4½	54.08	.60	17-20	13-16
4¾	60.25	.60	17-20	13-16
5	66.76	.60	17-20	13-16
5¼	73.60	.60	17-20	13-16
5½	80.78	.60	17-20	13-16
5¾	88.29	.60	17-20	13-16
6	96.13	.60	17-20	13-16
6¼	104.31	.70	17-20	13-16
6½	112.82	.70	17-20	13-16
6¾	121.67	.80	....	13-16
7	130.85	.80	17-20	13-16
7¼	140.36	.80	17-20	....
7½	150.21	.80	17-20	....
8	170.90	1.10	17-20	13-16

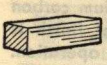
*Detroit stock only.
†Straightening extra included in warehouse base price.

MEDIUM CARBON ALLOYS

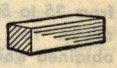
AISI E6150—ANNEALED

Identification Color: Pink

Machine Straightened—Pickled and Lacquered



HOT ROLLED SQUARES



In our Detroit Plant

Size in Inches	Wt. per Ft., Lbs.	Size & Finish Extra	Random Lgths., Ft.
½	0.850	2.15	14-16
⅝	1.33	1.75	14-16
¾	1.91	1.55	14-16
1	3.40	1.55	14-16
1¼	5.31	1.55	14-16
1½	7.65	1.50	14-16
1¾	10.41	1.50	14-16
2	13.60	1.50	14-16
2½	21.25	1.50	14-16
3	30.60	1.60	13-16
3½	41.65	1.60	13-16
4	54.40	1.60	13-16

HOT ROLLED FLATS

In our Detroit Plant

Size in Inches	Wt. per Ft., Lbs.	Size & Finish Extra	Random Lgths., Ft.
1/2x1	1.70	1.95	14-16
1¼	2.13	1.75	14-16
1½	2.55	1.75	14-16
2	3.40	1.55	14-16
2½	4.25	1.55	14-16
3	5.10	1.55	14-16
5/8x1	2.13	1.75	14-16
1¼	2.66	1.55	14-16
1½	3.19	1.55	14-16
2	4.25	1.55	14-16
3/4x1	2.55	1.55	14-16
1¼	3.19	1.55	14-16
1½	3.83	1.55	14-16
2	5.10	1.55	14-16
2¼	5.74	1.55	14-16
2½	6.38	1.55	14-16
3	7.65	1.55	14-16
4	10.20	1.55	14-16
1 x1¼	4.25	1.55	14-16
1½	5.10	1.55	14-16
2	6.80	1.55	14-16
2½	8.50	1.55	14-16
3	10.20	1.50	14-16
3½	11.90	1.50	14-16
4	13.60	1.50	14-16
5	17.00	1.60	14-16
6	20.40	1.60	14-16
1-1/4x1½	6.38	1.55	14-16
2	8.50	1.55	14-16
2½	10.63	1.55	14-16
3	12.75	1.50	14-16
3½	14.88	1.50	14-16
4	17.00	1.50	14-16
5	21.25	1.60	14-16
6	25.50	1.60	13-16
1-1/2x2	10.20	1.50	14-16
2½	12.75	1.50	14-16
3	15.30	1.50	14-16
3½	17.85	1.60	14-16
4	20.40	1.60	14-16
5	25.50	1.60	13-16
6	30.60	1.60	13-16
1-3/4x2½	14.88	1.50	14-16
3	17.85	1.50	14-16
2 x2½	17.00	1.50	14-16
3	20.40	1.60	14-16
4	27.20	1.60	13-16
5	34.00	1.60	13-16
6	40.80	1.60	13-16
2-1/2x3	25.50	1.60	13-16
3½	29.75	1.60	13-16
4	34.00	1.60	13-16
5	42.50	1.60	13-16
3 x4	40.80	1.60	13-16
5	51.00	1.60	13-16
6	61.20	1.60	13-16

MEDIUM CARBON ALLOYS
RYCUT—ANNEALED
.50 Carbon Free Machining Alloy
Identification Colors: Yellow and Black
Machine Straightened*

Carbon	Mang.	Phos.	Sul.	Sil.	Chrom.	Moly.
.47-.54	.75-1.00	.040 Max.	.06-.10	.20-.35	.80-1.10	.15-.25

Rycut is a fine-grained medium carbon alloy steel possessing from 25 to 50% better machinability than standard medium carbon alloys. Tool life is increased up to 100% and a better finish is obtained which saves grinding time after the hardening operation.

Hardenability is comparable to AISI 4150, although Rycut may show a slightly lower ductility as expressed in elongation, reduction of area and impact. Rycut is used in the manufacture of parts requiring a .50 carbon alloy steel. Hardenability test results for each heat or melt furnished with each shipment. Rycut can be flame or induction hardened to a surface hardness of Rockwell C-60-64.

Typical applications include axle shafts, gears, wrenches, tools, pinion shafts, crankshafts, clutch parts, gun barrels, etc.

HOT ROLLED ROUNDS

Size in Inches	Wt. per Ft., Lbs.	Size Extra	Random Lgths., Ft.
3/4	1.50	.55	14-16
7/8	2.04	.55	14-16
1	2.67	.55	14-16
1 1/8	3.38	.55	14-16
1 1/4	4.17	.55	14-16
1 3/8	5.05	.55	14-16
1 1/2	6.01	.50	14-16
1 5/8	7.05	.50	14-16
1 3/4	8.18	.50	14-16
1 7/8	9.39	.50	14-16
2	10.68	.50	14-16
2 1/8	12.06	.50	14-16
2 1/4	13.52	.50	14-16
2 3/8	15.06	.50	14-16
2 1/2	16.69	.50	14-16
2 5/8	18.40	.60	14-16
2 3/4	20.20	.60	14-16
2 7/8	22.07	.60	14-16
3	24.03	.60	14-16
3 1/8	26.08	.60	14-17
3 1/4	28.21	.60	14-17
3 3/8	30.42	.60	17-20
3 1/2	32.71	.60	14-17
3 5/8	35.09	.60	14-17
3 3/4	37.55	.60	14-17
3 7/8	40.10	.60	14-17
4	42.73	.60	14-17
4 1/4	48.23	.60	14-17
4 1/2	54.08	.60	14-17
4 3/4	60.25	.60	14-17
5	66.76	.60	14-17
5 1/4	73.60	.60	14-17
5 1/2	80.78	.60	14-17
5 3/4	88.29	.60	14-17
6	96.13	.60	14-17
6 1/4	104.31	.70	14-17
6 1/2	112.82	.70	14-17
6 3/4	121.67	.80	14-17
7	130.85	.80	14-17
7 1/4	140.36	.80	14-17
7 1/2	150.21	.80	14-17
7 3/4	160.39	.90	14-17
8	170.90	1.10	14-17

COLD FINISHED ROUNDS

1/2	0.668	2.10	10-12
9/16	0.845	1.85	10-12
5/8	1.04	1.55	10-12
11/16	1.26	1.35	10-12
3/4	1.50	1.35	10-12
13/16	1.76	1.20	10-12
7/8	2.04	1.20	10-12
15/16	2.35	1.20	10-12
1	2.67	1.20	10-12
1 1/16	3.01	1.20	10-12
1 1/8	3.38	1.20	10-12
1 3/16	3.77	1.20	10-12
1 1/4	4.17	1.20	10-12
1 5/16	4.60	1.20	10-12
1 3/8	5.05	1.20	10-12
1 7/16	5.52	1.20	10-12
1 1/2	6.01	1.15	10-12
1 9/16	6.52	1.15	10-12
1 5/8	7.05	1.15	10-12
1 3/4	8.18	1.15	10-12
1 7/8	9.39	1.15	10-12
1 15/16	10.02	1.15	10-12
2	10.68	1.15	10-12
2 1/8	12.06	1.15	10-12
2 1/4	13.52	1.15	10-12
2 3/8	15.06	1.15	10-12
2 1/2	16.69	1.25	10-12
2 5/8	18.40	1.25	10-12
2 3/4	20.20	1.25	10-12
3	24.03	1.85	10-12

*Straightening extra included in warehouse base price.

MEDIUM CARBON ALLOYS

RYCUT—ANNEALED

Identification Colors: Yellow and Black

.50 Carbon Free Machining Alloy
HOT ROLLED FLATS

Size in Inches	Wt. per Ft., Lbs.	Size Extra	Random Lgths., Ft.
1/4x			
1	0.850	1.35	14-16
1½	1.28	1.15	14-16
2	1.70	.75	14-16
2½	2.13	.75	14-16
3	2.55	.75	14-16
3/8x			
¾	0.956	1.15	18-20
1	1.28	1.15	18-20
1¼	1.59	.95	14-16
1½	1.91	.95	18-20
2	2.55	.75	14-16
2½	3.19	.55	14-16
3	3.83	.55	14-16
1/2x			
¾	1.28	.95	18-20
1	1.70	.95	18-20
1¼	2.13	.75	14-16
1½	2.55	.75	18-20
2	3.40	.55	18-20
2½	4.25	.55	14-16
3	5.10	.55	14-16
4	6.80	.55	14-16
5/8x			
1	2.13	.75	14-16
1¼	2.66	.55	14-16
1½	3.19	.55	14-16
2	4.25	.55	14-16
3/4x			
1	2.55	.55	18-20
1¼	3.19	.55	14-16
1½	3.83	.55	18-20
2	5.10	.55	18-20
2½	6.38	.55	14-16
3	7.65	.55	18-20
4	10.20	.55	14-16
1x			
1½	5.10	.55	18-20
2	6.80	.55	18-20
1x			
2½	8.50	.55	14-16
3	10.20	.50	18-20
4	13.60	.50	18-20
1-1/4x			
2	8.50	.55	18-20
2½	10.63	.55	14-16
3	12.75	.50	18-20
4	17.00	.50	14-16
5	21.25	.60	14-16
1-1/2x			
2	10.20	.50	18-20
3	15.30	.50	18-20
4	20.40	.60	18-20
5	25.50	.60	13-16
6	30.60	.60	13-16
7	35.70	.80	13-16
1-3/4x			
3	17.85	.50	14-16
4	23.80	.60	13-16
5	29.75	.60	13-16
6	35.70	.60	13-16
7	41.65	.90	13-16
2x			
4	27.20	.60	17-20
5	34.00	.60	13-16
6	40.80	.60	17-20
7	47.60	.90	13-16
2-1/2x			
4	34.00	.60	13-16
5	42.50	.60	13-16
6	51.00	.60	13-16
7	59.50	.95	13-16
3x			
4	40.80	.60	17-20
5	51.00	.60	13-16
6	61.20	.60	17-20
7	71.40	.95	13-16

HOT ROLLED SQUARES

In our Philadelphia Plant

Size in Inches	Wt. per Ft., Lbs.	Size Extra	Random Lgths., Ft.
1¾	10.41	.50	18-20
2	13.60	.50	18-20
2½	21.25	.50	18-20
3	30.60	.60	18-20
3½	41.65	.60	17-20
4	54.40	.60	17-20

MEDIUM CARBON ALLOY STEELS

RYCUT—HEAT TREATED

Identification Colors: Brown and Red
MACHINE STRAIGHTENED—STRESS RELIEVED

.50 Carbon Free Machining Alloy

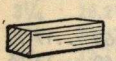
These bars are heat treated to develop the highest possible degree of hardness compatible with good machinability. Bars are quenched, tempered, machine straightened and stress relieved. Heat treated, ready to use Rycut, having the minimum mechanical properties shown below, can be machined at speeds of 100 surface feet per minute with standard high speed cutting tools.

HOT ROLLED ROUNDS

Minimum Mechanical Properties

Sizes	Tensile Strength, P.S.I.	Yield Point P.S.I.	% Elong. in 2"	% Red. of Area	Approximate Brinell Hardness
2½" and under	140,000	120,000	15	50	297/341
Over 2½" to 4"	135,000	110,000	15	45	277/341
Over 4" to 6"	125,000	100,000	15	40	269/341
Over 6" to 8"	120,000	95,000	15	40	255/341
Over 8" to 9" incl.	115,000	85,000	15	40	255/341

Size in Inches	Wt. per Ft., Lbs.	Size Extra	Random Lgths, Ft.
¾	1.50	.55	14-16
⅞	2.04	.55	14-16
1	2.67	.55	14-16
1⅛	3.38	.55	14-16
1¼	4.17	.55	14-16
1⅜	5.05	.55	14-16
1½	6.01	.50	14-16
1⅝	7.05	.50	14-16
1¾	8.18	.50	14-16
1⅞	9.39	.50	14-16
2	10.68	.50	14-16
2⅛	12.06	.50	14-16
2¼	13.52	.50	14-16
2½	16.69	.50	14-16
2¾	20.20	.60	14-16
3	24.03	.60	14-16
3¼	28.21	.60	14-17
3½	32.71	.60	14-17
3¾	37.55	.60	14-17
4	42.73	.60	14-17
4¼	48.23	.60	14-17
4½	54.08	.60	17-20
4¾	60.25	.60	17-20
5	66.76	.60	17-20
5¼	73.60	.60	17-20
5½	80.78	.60	17-20
5¾	88.29	.60	17-20
6	96.13	.60	17-20
6¼	104.31	.70	17-20
6½	112.82	.70	17-20
6¾	121.78	.80	17-20
7	130.85	.80	17-20
7¼	140.53	.80	17-20
7½	150.21	.80	17-20
8	170.90	1.10	17-20
9	216.30	2.20	14-17



HOT ROLLED SQUARES

Minimum Mechanical Properties

Sizes	Tensile Strength P.S.I.	Yield Point P.S.I.	% Elong. in 2"	% Red. of Area	Approximate Brinell Hardness
2½" and under	125,000	105,000	16	50	269/321
Over 2½" to 4" Incl.	115,000	95,000	16	50	255/321

Size in Inches	Wt. per Ft., Lbs.	Size Extra	Random Lgths., Ft.
1	3.40	.55	18-20
1¼	5.31	.55	18-20
1½	7.65	.50	18-20
1¾	10.41	.50	18-20
2	13.60	.50	18-20
2¼	17.21	.50	18-20
2½	21.25	.50	18-20
2¾	25.71	.50	18-20
3	30.60	.60	18-20
3½	41.65	.60	17-20
4	54.40	.60	17-20

MEDIUM CARBON ALLOY STEELS

AISI 4140—HEAT TREATED

Identification Colors: Black and White

Stress Relieved to Minimize Warpage During Machining

These bars are heat treated to the highest hardness that can be commercially machined. The mechanical properties conform to standard requirements for heavy duty shafting and bolting material. These bars are heat treated to meet the properties of A.S.T.M. Specifications A-193-49T Grade B-7 for alloys used for bolting at 750° F. to 1100° F.

TYPICAL MINIMUM MECHANICAL PROPERTIES

Hot Rolled and Cold Finished

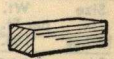
Sizes	Tensile Strength P.S.I.	Yield Point P.S.I.	% Elong. in 2"	% Red. of Area	Brinell Hardness
2½" and under	125,000	105,000	16	50	269/321
Over 2½" to 4"	115,000	95,000	16	50	255/321
Over 4"	110,000	85,000	16	45	248/321

HOT ROLLED ROUNDS

Size in Inches	Wt. per Ft., Lbs.	Size Extra	Random Lgths., Ft.
⅜	0.376	1.55	18-20
½	0.668	1.15	18-20
⅝	1.04	.75	18-20
¾	1.50	.55	18-20
⅞	2.04	.55	18-20
1	2.67	.55	18-20
1⅛	3.38	.55	18-20
1¼	4.17	.55	18-20
1⅜	5.05	.55	18-20
1½	6.01	.50	18-20
1⅝	7.05	.50	18-20
1¾	8.18	.50	18-20
1⅞	9.39	.50	18-20
2	10.68	.50	18-20
2⅛	12.06	.50	18-20
2¼	13.52	.50	18-20
2⅜	15.06	.50	18-20
2½	16.69	.50	18-20
2⅝	18.40	.60	18-20
2¾	20.20	.60	18-20
2⅞	22.07	.60	18-20
3	24.03	.60	18-20
3⅛	26.08	.60	17-20
3¼	28.21	.60	17-20
3⅜	30.42	.60	17-20
3½	32.71	.60	17-20
3⅝	35.09	.60	17-20
3¾	37.55	.60	17-20
3⅞	40.10	.60	17-20
4	42.73	.60	17-20
4⅛	45.44	.60	Cinc. 17-20
4¼	48.23	.60	17-20
4½	54.08	.60	17-20
4¾	60.25	.60	17-20
5	66.76	.60	17-20
5¼	73.60	.60	17-20
5½	80.78	.60	17-20
5¾	88.29	.60	17-20
6	96.13	.60	17-20

For Cutting Extras turn to last section of book.

HOT ROLLED SQUARES



In our Philadelphia and Chicago Plants

Size in Inches	Wt. per Ft., Lbs.	Size Extra	Random Lgths., Ft.
1	3.40	.55	14-16
1¼	5.31	.55	14-16
1½	7.65	.50	18-20
1¾	10.41	.50	18-20
2	13.60	.50	18-20
2¼	17.21	.50	18-20
2½	21.25	.50	18-20
2¾	25.71	.60	18-20
3	30.60	.60	17-20
3½	41.65	.60	17-20
4	54.40	.60	17-20

For Cutting Extras turn to last section of book.

MEDIUM CARBON ALLOY STEELS

AISI 4140—HEAT TREATED

Identification Colors: Black and White

Machine Straightened

Stress Relieved to Minimize Warpage During Machining

TYPICAL MINIMUM MECHANICAL PROPERTIES
SAME AS HOT ROLLED 4140—HEAT TREATED

COLD FINISHED ROUNDS

Sizes 2 15/16" and larger are Turned and Polished.

Size in Inches	Wt. per Ft., Lbs.	Size Extra	Random Lgths., Ft.	Size in Inches	Wt. per Ft., Lbs.	Size Extra	Random Lgths., Ft.
1/4	0.167	4.00	10-12	1 11/16	7.60	1.15	10-12
3/8	0.376	2.55	10-12	1 3/4	8.18	1.15	10-12
7/16	0.511	2.30	10-12	1 7/8	9.39	1.15	10-12
1/2	0.668	2.10	10-12	1 15/16	10.02	1.15	10-12
9/16	0.845	1.85	10-12	2	10.68	1.15	10-12
5/8	1.04	1.55	10-12	2 1/8	12.06	1.15	10-12
11/16	1.26	1.35	10-12	2 1/4	13.52	1.15	10-12
3/4	1.50	1.35	10-12	2 3/8	15.06	1.15	10-12
13/16	1.76	1.20	10-12	2 7/16	15.87	1.15	10-12
7/8	2.04	1.20	10-12	2 1/2	16.69	1.25	10-12
15/16	2.35	1.20	10-12	2 5/8	18.40	1.25	10-12
1	2.67	1.20	10-12	2 3/4	20.20	1.25	10-12
1 1/16	3.01	1.20	10-12	2 7/8	22.07	1.25	10-12
1 1/8	3.38	1.20	10-12	2 15/16	23.04	1.85	10-12
1 3/16	3.77	1.20	10-12	3	24.03	1.85	10-12
1 1/4	4.17	1.20	10-12	3 1/8	26.08	1.95	10-12
1 5/16	4.60	1.20	10-12	3 1/4	28.21	1.95	10-12
1 3/8	5.05	1.20	10-12	3 7/16	31.55	2.00	10-12
1 7/16	5.52	1.20	10-12	3 1/2	32.71	2.00	10-12
1 1/2	6.01	1.15	10-12	3 3/4	37.55	2.00	10-12
1 9/16	6.52	1.15	10-12	3 15/16	41.40	2.15	10-12
1 5/8	7.05	1.15	10-12	4	42.73	2.15	10-12

For Cutting Extras turn to last section of book.

COLD FINISHED HEXAGONS

Size in Inches	Wt. per Ft., Lbs.	Size Extra	Random Lgths., Ft.	Size in Inches	Wt. per Ft., Lbs.	Size Extra	Random Lgths., Ft.
9/16	0.932	2.20	10-12	1 1/2	6.63	1.35	10-12
3/4	1.66	1.45	10-12	1 5/8	7.78	1.50	10-12
7/8	2.25	1.45	10-12	1 7/8	10.36	1.50	10-12
15/16	2.59	1.45	10-12	2	11.78	1.50	10-12
1	2.95	1.35	10-12	2 1/4	14.91	1.55	10-12
1 1/16	3.32	1.35	10-12	2 3/8	16.61	1.55	10-12
1 1/8	3.73	1.35	10-12	2 1/2	18.40	1.55	10-12
1 1/4	4.60	1.35	10-12	2 5/8	20.29	1.55	10-12
1 7/16	6.09	1.35	10-12	3	26.50	2.05	10-12

For Cutting Extras turn to last section of book.

MEDIUM CARBON ALLOY STEELS

AISI 4340—HEAT TREATED

Identification Colors: Green and Aluminum

Machine Straightened*

Stress Relieved to Minimize Warpage During Machining

4340, because of its high alloy content, possesses deeper hardenability than steels of lesser alloy content. Therefore it is especially suited in the heat treated condition for heavy duty shafts of large cross-section. This 4340 is already quenched, tempered and stress relieved to meet the requirements of large diameter axles and shafts.

TYPICAL MINIMUM MECHANICAL PROPERTIES

Condition of Steel	Tensile Strength P.S.I.	Yield Point P.S.I.	Elong. % in 2"	% Red. of Area	Approximate Brinell Hardness
Hot Rolled—					
Heat Treated	110,000	90,000	16	47	241/293

HOT ROLLED ROUNDS

Size in Inches	Wt. per Ft., Lbs.	Size Extra	Random Lgths., Ft.
4 1/2	54.08	.60	17-20
4 3/4	60.25	.60	17-20
5	66.76	.60	17-20
5 1/4	73.60	.60	17-20
5 1/2	80.78	.60	17-20
5 3/4	88.29	.60	17-20
6	96.13	.60	17-20
6 1/4	104.31	.70	17-20
6 1/2	112.82	.70	17-20
6 3/4	121.67	.80	17-20
7	130.85	.80	17-20
7 1/4	140.36	.80	17-20
7 1/2	150.21	.80	17-20
8	170.90	1.10	17-20

*Straightening extra included in warehouse base price.

New Aircraft Book

Ryerson's new Aircraft Book condenses for you the latest information on Air Force, Navy and Government Aircraft steel specifications. It gives you the Chemistry, condition, form and equivalent AISI spec for MIL, AN, QQ-S and AMS aircraft quality steels. Also included is a full listing of the aircraft quality alloy and stainless steels available for immediate shipment from our warehouse stocks . . . steels produced in strict accordance with the Aeronautical specifications. For more information on the aircraft steels in this stock list, ask for our special Aircraft Steels Booklet.

MEDIUM CARBON MANGANESE STEELS

RY-AX—HEAT TREATED

Identification Color: Aluminum

Stress Relieved to Minimize Warpage During Machining

Ry-Ax is a moderate cost, unusually tough, Carbon Manganese Steel melted under special furnace control and heat treated to produce high shock and fatigue resistance. The careful stress relieving treatment produces a steel with minimum distortion where straightness must be maintained during machining. Because of the free machining qualities of Ry-Ax, the life of the tool is lengthened and the finish obtained is smoother than that of many heat treated alloy steels. Its strength, toughness and high endurance limit make it especially suited for shafts which must stand up under excessive abuse. Originally developed for axles and armatures, it has been found excellent for many other medium and heavy duty applications such as shafts, spindles, screws, U bolts, tie rods and similar uses. Descriptive bulletin will be sent on request.

Typical Minimum Mechanical Properties

Hot Rolled—Heat Treated

Sizes	Tensile Strength P.S.I.	Yield Point P.S.I.	% Elong. in 2"	% Red. of Area	Approximate Brinell Hardness
3¾" Rd. & Under	100,000	70,000	16	45	217/262
Over 3¾" Rd.	100,000	60,000	16	40	217/262

HOT ROLLED ROUNDS

In our New York or Cincinnati Plants

Size in Inches	Wt. per Ft., Lbs.	Size & Qual. Extra	Stock Lgths., Ft.
⅝	1.04	5.30	20
¾	1.50	5.20	20
⅞	2.04	5.20	20
1	2.67	5.15	20
1⅛	3.38	5.15	20
1¼	4.17	5.15	20
1⅜	5.05	5.15	20
1½	6.01	5.05	20
1⅝	7.05	5.05	20
1¾	8.18	5.05	20
1⅞	9.39	5.05	20
2	10.68	5.20	16
2⅛	12.06	5.20	16
2¼	13.52	5.20	16
2⅜	15.06	5.20	16
2½	16.69	5.20	16
2⅝	18.40	5.20	20
2¾	20.20	5.20	16
2⅞	22.07	5.20	20
3	24.03	5.35	16
3⅛	26.08	5.35	20
3¼	28.21	5.35	16
3⅜	30.42	5.35	20
3½	32.71	5.35	16
3⅝	35.09	5.35	20
3¾	37.55	5.35	16
3⅞	40.10	5.35	20
4	42.73	5.35	16
4⅛	45.44	5.35	20
4¼	48.23	5.35	20
4⅜	51.11	5.35	20
4½	54.08	5.35	16
4⅝	57.12	5.40	20
4¾	60.25	5.40	16
4⅞	63.46	5.40	20
5	66.76	5.40	16
5¼	73.60	5.50	16
5⅜	77.15	5.50	20
5½	80.78	5.50	16
5¾	88.29	5.60	20
6	96.13	5.60	16
6½	112.82	5.70	20
7	130.85	5.80	20

For Cutting Extras turn to last section of book.

MEDIUM CARBON ALLOY STEELS

RYCROME—HEAT TREATED

Identification Colors: Black and White

Stress Relieved to Minimize Warpage During Machining

A heat treated, Chromium Molybdenum steel. The melting practice is closely controlled during manufacture to produce an especially high quality alloy. Machines more freely than other steels in its class, enabling speedy production of machined parts with no additional heat treatment. Because of balanced composition and careful hardening treatment, it is primarily a high strength steel with uniformly high physicals. Combines excellent tensile strength with good ductility, resulting in better shock and impact resistance than other steels of this type. Recommended for use in shafts wherever great stresses are imposed; also in important parts such as pinions, studs, roll mandrels, etc. Shows better than average creep values and gives splendid service on such application as high temperature bolts, studs, etc. Write for descriptive bulletin.

TYPICAL MINIMUM MECHANICAL PROPERTIES
Hot Rolled and Cold Finished

Sizes	Tensile Strength P.S.I.	Yield Point P.S.I.	% Elong. in 2"	% Red. of Area	Brinell Hardness
2½" and under	125,000	105,000	16	50	269/321
Over 2½" to 4"	115,000	95,000	16	50	255/321
Over 4"	110,000	85,000	16	45	248/321

HOT ROLLED ROUNDS

Size in Inches	Wt. per Ft., Lbs.	Size Extra	Random Lgths., Ft.
⅜	0.376	1.55	18-20
½	0.668	1.15	18-20
⅝	1.04	.75	18-20
¾	1.50	.55	18-20
⅞	2.04	.55	18-20
1	2.67	.55	18-20
1⅛	3.38	.55	18-20
1¼	4.17	.55	18-20
1⅜	5.05	.55	18-20
1½	6.01	.50	18-20
1⅝	7.05	.50	18-20
1¾	8.18	.50	18-20
1⅞	9.39	.50	18-20
2	10.68	.50	18-20
2⅛	12.06	.50	18-20
2¼	13.52	.50	18-20
2⅜	15.06	.50	18-20
2½	16.69	.50	18-20
2⅝	18.40	.60	18-20
2¾	20.20	.60	18-20
2⅞	22.07	.60	18-20
3	24.03	.60	18-20
3⅛	26.08	.60	17-20
3¼	28.21	.60	17-20
3⅜	30.42	.60	17-20
3½	32.71	.60	17-20
3⅝	35.09	.60	17-20
3¾	37.55	.60	17-20
3⅞	40.10	.60	17-20
4	42.73	.60	17-20
4⅛	45.44	.60	17-20
4¼	48.23	.60	17-20
4½	54.08	.60	17-20
4¾	60.25	.60	17-20
5	66.76	.60	17-20
5¼	73.60	.60	17-20
5½	80.78	.60	17-20
5¾	88.29	.60	17-20
6	96.13	.60	17-20

HOT ROLLED SQUARES

In our Philadelphia or Chicago Plants

Size in Inches	Wt. per Ft., Lbs.	Size Extra	Random Lgths., Ft.
1	3.40	.55	14-16
1¼	5.31	.55	14-16
1½	7.65	.50	18-20
1¾	10.41	.50	18-20
2	13.60	.50	18-20
2¼	17.21	.50	18-20
2½	21.25	.50	18-20
2¾	25.71	.60	18-20
3	30.60	.60	18-20
3½	41.65	.60	17-20
4	54.40	.60	17-20

MEDIUM CARBON ALLOY STEELS

RYCROME—HEAT TREATED

Identification Colors: Black and White

Machine Straightened

Stress Relieved to Minimize Warpage During Machining

TYPICAL MINIMUM MECHANICAL PROPERTIES SAME AS HOT ROLLED RYCROME

COLD FINISHED ROUNDS

Sizes 2 15/16" and larger are Turned and Polished.

Size in Inches	Wt. per Ft., Lbs.	Size Extra	Random Lgths., Ft.
1/4	0.167	4.00	10-12
3/8	0.376	2.55	10-12
7/16	0.511	2.30	10-12
1/2	0.668	2.10	10-12
9/16	0.845	1.85	10-12
5/8	1.04	1.55	10-12
11/16	1.26	1.35	10-12
3/4	1.50	1.35	10-12
13/16	1.76	1.20	10-12
7/8	2.04	1.20	10-12
15/16	2.35	1.20	10-12
1	2.67	1.20	10-12
1 1/16	3.01	1.20	10-12
1 1/8	3.38	1.20	10-12
1 3/16	3.77	1.20	10-12
1 1/4	4.17	1.20	10-12
1 5/16	4.60	1.20	10-12
1 3/8	5.05	1.20	10-12
1 7/16	5.52	1.20	10-12
1 1/2	6.01	1.15	10-12
1 9/16	6.52	1.15	10-12
1 5/8	7.05	1.15	10-12
1 11/16	7.60	1.15	10-12
1 3/4	8.18	1.15	10-12
1 7/8	9.39	1.15	10-12
1 15/16	10.02	1.15	10-12
2	10.68	1.15	10-12
2 1/8	12.06	1.15	10-12
2 1/4	13.52	1.15	10-12
2 3/8	15.06	1.15	10-12
2 7/16	15.87	1.15	10-12
2 1/2	16.69	1.25	10-12
2 5/8	18.40	1.25	10-12
2 3/4	20.20	1.25	10-12
2 7/8	22.07	1.25	10-12
2 15/16	23.04	1.85	10-12
3	24.03	1.85	10-12
3 1/8	26.08	1.95	10-12
3 1/4	28.21	1.95	10-12
3 7/16	31.55	2.00	10-12
3 1/2	32.71	2.00	10-12
3 3/4	37.55	2.00	10-12
3 15/16	41.40	2.15	10-12
4	42.73	2.15	10-12

For Cutting Extras turn to last section of book.

COLD FINISHED HEXAGONS

Size in Inches	Wt. per Ft., Lbs.	Size Extra	Random Lgths., Ft.
9/16	0.932	2.20	10-12
3/4	1.66	1.45	10-12
7/8	2.25	1.45	10-12
15/16	2.59	1.45	10-12
1	2.95	1.35	10-12
1 1/16	3.32	1.35	10-12
1 1/8	3.73	1.35	10-12
1 1/4	4.60	1.35	10-12
1 3/16	6.09	1.35	10-12
1 1/2	6.63	1.35	10-12
1 5/8	7.78	1.50	10-12
1 7/8	10.36	1.50	10-12
2	11.78	1.50	10-12
2 1/4	14.91	1.55	10-12
2 3/8	16.61	1.55	10-12
2 1/2	18.40	1.55	10-12
2 5/8	20.29	1.55	10-12
3	26.50	2.05	10-12

For Cutting Extras turn to last section of book.

MEDIUM CARBON ALLOY STEELS

NIKROME "M"—HEAT TREATED

Identification Colors: Green and Aluminum

Machine Straightened*

Stress Relieved to Minimize Warpage During Machining

Nikrome "M", a chrome nickel molybdenum alloy, has been developed to meet the demand for a steel with high mechanical properties in large sections. In large diameter bars it is necessary to have a highly alloyed steel in order to have depth of penetration in the heat treatment. Nikrome "M" is a rich alloy steel that has almost uniform hardness from outside to the center. It is furnished only in a fully heat treated condition and is intended to be machined and used without further heat treatment. This steel retains its high strength at relatively high temperatures and shows better ductility, impact and fatigue values at low temperatures than other alloy steels. Nikrome "M" is considered as the best money can buy for heavy duty shafts. Its application includes all types of large heavy duty shafts, pins and axles which require the strongest type of steel in large diameters.

TYPICAL MINIMUM MECHANICAL PROPERTIES

Condition of Steel	Tensile Strength P.S.I.	Yield Point P.S.I.	% Elong. in 2"	% Red. of Area	Approximate Brinell Hardness
Hot Rolled—Heat Treated	110,000	90,000	16	47	241/293

HOT ROLLED ROUNDS

Size in Inches	Wt. per Ft., Lbs.	Size Extra	Random Lgths., Ft.
4½	54.08	.60	17-20
4¾	60.25	.60	17-20
5	66.76	.60	17-20
5¼	73.60	.60	17-20
5½	80.78	.60	17-20
5¾	88.29	.60	17-20
6	96.13	.60	17-20
6¼	104.31	.70	17-20
6½	112.82	.70	17-20
6¾	121.67	.80	17-20
7	130.85	.80	17-20
7¼	140.36	.80	17-20
7½	150.21	.80	17-20
8	170.90	1.10	17-20

*Straightening extra included in warehouse base price.

HELPFUL LITERATURE

Helpful literature an all types of steel is available.

If you are puzzled about what steel to use—or how to use it—tell us your problem. We will be glad to send literature and make suggestions.

HEAT TREATED—NITRIDING ALLOYS

NITRALLOY TYPE 135 MODIFIED

Identification Colors: Brown and Blue

Heat Treated—Sorbitic Structure—Machine Straightened

Aircraft Quality Conforming to Specification MIL-S-6709, Comp. A and/or AMS 6470C

MIL-S-6709, COMPOSITION A

Carbon	Manganese	Silicon	Chromium	Aluminum	Molybdenum
.38-.43	.50-.70	.20-.40	1.40-1.80	.90-1.35	.30-.40

AMS 6470 C

.38-.43	.50-.70	.20-.40	1.40-1.80	.95-1.30	.30-.40

Nitralloy is a readily machinable special alloy steel intended expressly for the production of parts that are to be later surface hardened by the nitriding process. It is manufactured in strict accordance with the Military Aeronautical Specification. The bars as carried are heat treated to the following approximate mechanical properties (determined at the center for bars up to 1½" round, and for bars 1½" round and larger at the half radius) are: Tensile Strength 110,000 psi. min.; Yield Point 85,000 psi. min.; Elongation in 2", 18% min.; Reduction of Area 50% min.; and Brinell Hardness 223/263. The sorbitic structure obtained by treating to these mechanical properties is the structure best suited for subsequent nitriding. In most applications, the properties of the steel is sufficient to back up the nitrided case after nitriding. If different properties are specified in conjunction with either of the above aeronautical specifications, the bars can be rough machined and then heat treated to the specified requirements. All surface decarburization must be completely removed before nitriding. The nitriding process does not lower the core tensile properties, but produces a case of extreme hardness, which offers greater wear resistance, retention of hardness at elevated temperatures and added resistance to corrosion.

In addition to the sizes shown as available for immediate shipment, we are able to furnish promptly from the mill other sizes and finishes in the same grade or conforming to Nitralloy 135 (G), Nitralloy EZ or Nitralloy N. Bulletins containing detailed information on Nitralloy and the nitriding process will gladly be sent on request.

HOT ROLLED ROUNDS

Size in Inches	Wt. per Ft. Lbs.	Size Extra	Random Lgths., Ft.
⅜	0.376	1.00	14-16
½	0.668	1.00	14-16
⅝	1.04	.50	14-16
¾	1.50	Base	14-16
⅞	2.04	"	14-16
1	2.67	"	14-16
1⅛	3.38	"	14-16
1¼	4.17	"	14-16
1⅜	5.05	"	14-16
1½	6.01	"	14-16
1⅝	7.05	"	14-16
1¾	8.18	"	14-16
1⅞	9.39	"	14-16
2	10.68	"	14-16
2⅛	12.06	"	14-16
2¼	13.52	"	14-16
2½	16.69	"	14-16
2⅝	18.40	Base	14-16
2¾	20.20	"	14-16
2⅞	22.07	"	14-16
3	24.03	"	14-16
3¼	28.21	.75	13-16
3½	32.71	.75	13-16
3¾	37.55	.75	13-16
4	42.73	.75	13-16
4¼	48.23	1.25	13-16
4½	54.08	1.25	13-16
4¾	60.25	1.25	13-16
5	66.76	1.25	13-16
5¼	73.60	1.25	13-16
5½	80.78	1.25	13-16
5¾	88.29	1.25	13-16
6	96.13	1.25	13-16

For Cutting Extras turn to last section of book.

AIRCRAFT QUALITY ALLOY STEELS

4130

NORMALIZED, PICKLED AND OILED

Identification Colors: Yellow and Green

4130 Chrome Molybdenum Alloy Steel Conforms to Specification AN-QQ-S-685 As Amended (Condition N)

Minimum Mechanical Properties

Thickness in Inches	Tensile Strength P.S.I.	Yield Strength P.S.I.	% Elong. in 2"
.062 and under	95,000	75,000	10.0
Over .062 to .125	95,000	75,000	12.0
Over .125 to .187	95,000	75,000	15.0
Over .187 to .625	90,000	70,000	20.0
.750 and over	90,000	70,000	18.0

HOT ROLLED ALLOY STRIP

Thickness in In.	Size in In.	Wt. per Sq. Ft., Lbs.	Thickness in In.	Size in In.	Wt. per Sq. Ft., Lbs.	Thickness in In.	Size in In.	Wt. per Sq. Ft., Lbs.
.032	18x72	Chi.1.306	.080	18x72	3.264	.187	18x72	7.630
.036	18x72	1.468	.090	18x72	3.672	.250	18x72	10.200
.040	18x72	Chi.1.632	.100	18x72	4.080	.312	18x72	12.730
.042	18x72	St.L.1.714	.109	18x72	St.L.4.447	.375	18x72	15.300
.050	18x72	2.040	.125	18x72	5.100	.500	18x72	20.400
.063	18x72	2.570	.156	18x72	St.L.6.365	.625	18x72	25.700
.078	18x72	St.L.3.182	.160	18x72	6.528	.750	18x72	Chi.30.600

4130 Annealed, Pickled and Oiled Strip is available for prompt shipment from mill.

Standard Permissible Variations from Specified Thickness

4130 Chrome Molybdenum Alloy Strip

Thickness in Inches	Permissible Variations, Inches		Thickness in Inches	Permissible Variations, Inches	
Over to Incl.	Plus	Minus	Over to Incl.	Plus	Minus
.018 to .037	.003	.003	.187 to .250	.020	.010
.037 to .062	.004	.004	.250 to .375	.025	.010
.062 to .078	.005	.005	.375 to .500	.030	.010
.078 to .109	.006	.006	.500 to .625	.035	.010
.109 to .141	.007	.007	.625 to .750	.040	.010
.141 to .187	.008	.008	.750 to .875	.045	.010

Additional Aircraft Quality Alloy Steels

On the next several pages are listed our principal Aircraft Quality alloy steels. From them you can generally make your selection. In addition, other shapes, conditions, and finishes which are stocked in our Los Angeles plant are briefly listed below.

1020-1025 CARBON STEEL STRIP
Hot Rolled, Pickled and Oiled
Conforms to Specification AN-S-11, As Amended

4130—NORMALIZED ROUNDS—BILLETS (As Rolled)
HOT ROLLED
Conforms to Specification MIL-S-6758
Superseding AN-S-684

4140
NORMALIZED HOT ROLLED ROUNDS
ANNEALED HOT ROLLED FLATS
ANNEALED COLD FINISHED HEXAGONS
HOT ROLLED BILLETS
Conforms to Specification MIL-S-5626
Superseding AN-QQ-S-752, As Amended

4340 BILLETS HOT ROLLED
Conforms to Specification MIL-S-5000, As Amended
And/or AMS 6415-C

AIRCRAFT QUALITY ALLOY STEELS

4130—ANNEALED

Identification Colors: Purple and Green

An Electric Furnace Product, Aircraft Quality, Conforming to

Specification MIL-S-6758

Superseding AN-S-684

4130 Chromium Molybdenum Alloy Steel is manufactured in strict accordance with the Military Specification. After machining operations, the bars may be subjected to Magnaflux Inspection.

COLD FINISHED ROUNDS

Condition C—Surface 4

Size in Inches	Wt. per Ft., Lbs.	Size Extra	Random Lgths., Ft.	Size in Inches	Wt. per Ft., Lbs.	Size Extra	Random Lgths., Ft.
3/16	0.094	5.85	10-12	1 7/16	5.52	1.20	10-12
1/4	0.167	4.00	10-12	1 1/2	6.01	1.20	10-12
5/16	0.261	3.20	10-12	1 9/16	6.52	1.15	10-12
3/8	0.376	2.55	10-12	1 5/8	7.05	1.15	10-12
7/16	0.511	2.30	10-12	1 3/4	8.18	1.15	10-12
1/2	0.668	2.10	10-12	1 7/8	9.39	1.15	10-12
9/16	0.845	1.85	10-12	2	10.68	1.15	10-12
5/8	1.04	1.55	10-12	2 1/8	12.06	1.15	10-12
11/16	1.26	1.35	10-12	2 1/4	13.52	1.15	10-12
3/4	1.50	1.35	10-12	2 3/8	15.06	1.15	10-12
13/16	1.76	1.20	10-12	2 1/2	16.68	1.25	10-12
7/8	2.04	1.20	10-12	2 5/8	18.40	1.25	10-12
15/16	2.35	1.20	10-12	2 3/4	20.20	1.25	10-12
1	2.67	1.20	10-12	2 7/8	22.07	1.25	10-12
1 1/16	3.01	1.20	10-12	3	24.03	1.85	10-12
1 1/8	3.38	1.20	10-12	3 1/8	26.08	1.95	10-12
1 3/16	3.77	1.20	10-12	3 1/4	28.21	1.95	10-12
1 1/4	4.17	1.20	10-12	3 1/2	32.71	2.00	10-12
1 5/16	4.60	1.20	Chi. 10-12	3 3/4	37.55	2.00	10-12
1 3/8	5.05	1.20	10-12	4	42.73	2.15	10-12

COLD FINISHED HEXAGONS

Condition C—Surface 4

Size in Inches	Wt. per Ft., Lbs.	Size Extra	Random Lgths., Ft.	Size in Inches	Wt. per Ft., Lbs.	Size Extra	Random Lgths., Ft.
3/8	0.414	3.55	10-12	7/8	2.25	1.45	10-12
7/16	0.564	2.85	10-12	15/16	2.59	1.45	10-12
1/2	0.736	2.20	10-12	1	2.95	1.35	10-12
9/16	0.932	2.20	10-12	1 1/16	3.32	1.35	10-12
5/8	1.15	1.70	10-12	1 1/4	4.60	1.35	10-12
3/4	1.66	1.45	10-12				

AIRCRAFT QUALITY ALLOY STEELS

4130—NORMALIZED

An Electric Furnace Product, Aircraft Quality, Conforming to

Specification MIL-S-6758

Superseding AN-S-684

Minimum Tensile Strength: 1½" Rd. and Under.....90,000 p.s.i.

4130 Chrome Molybdenum Alloy Steel is manufactured in strict accordance with the Military Aeronautical Specification. After machining operations, the bars may be subjected to Magnaflux Inspection.

Identification Colors: Yellow and Green

COLD FINISHED ROUNDS

Condition D—Surface 4

Size in Inches	Wt. per Ft., Lbs.	Size Extra	Random Lgths., Ft.	Size in Inches	Wt. per Ft., Lbs.	Size Extra	Random Lgths., Ft.
1 1/16	3.01	1.20	10-12	1 7/8	9.39	1.15	10-12
1 1/8	3.38	1.20	10-12	2	10.68	1.15	10-12
1 3/16	3.77	1.20	10-12	2 1/8	12.06	1.15	10-12
1 1/4	4.17	1.20	10-12	2 1/4	13.52	1.15	10-12
1 5/16	4.60	1.20	10-12	2 3/8	15.06	1.15	10-12
1 3/8	5.05	1.20	10-12	2 1/2	16.69	1.25	10-12
1 7/16	5.52	1.20	10-12	2 5/8	18.40	1.25	10-12
1 1/2	6.01	1.15	10-12	2 3/4	20.20	1.25	10-12
1 5/8	7.05	1.15	10-12	2 7/8	22.07	1.25	10-12
1 3/4	8.18	1.15	10-12	3	24.03	1.85	10-12

Specifying Alloy Steels?

what

CERTIFIED QUALITY

means to you

All Ryerson Alloy Steels are carefully controlled by the Ryerson **Certified** Alloy Steel Plan. More than just a word—**Certified** has a real meaning in protecting you from the definite hazards involved in buying alloy steels:

Certified quality means: careful alloy selection • verified chemical analysis of each heat • spark testing to avoid mixed steels • positive identification by color • testing and interpreting hardenability • and a Certificate that identifies your steel and guides heat treatment—all the integrated steps of this program serving to control quality—make sure you get the exact alloy you order—and help you secure a perfect finished part or product.

So save money, speed production by selecting your requirements from our Certified Alloys. THEY COST NO MORE.

AIRCRAFT QUALITY ALLOY STEELS

4130—NORMALIZED AND TEMPERED

An Electric Furnace Product, Aircraft Quality, Conforming to

Specification MIL-S-6758
Superseding AN-S-684

Tensile Strength: 90,000-115,000 p.s.i.

4130 Chrome Molybdenum Alloy Steel is manufactured in strict accordance with the Military Aeronautical Specification. After machining operations, the bars may be subjected to Magnaflux Inspection.

Identification Colors: Brown and Yellow

COLD FINISHED ROUNDS

Condition E—Surface 4

Size in Inches	Wt. per Ft., Lbs.	Size Extra	Random Lgths., Ft.	Size in Inches	Wt. per Ft., Lbs.	Size Extra	Random Lgths., Ft.
1/4	0.167	4.00	10-12	13/16	1.76	1.20	10-12
5/16	0.261	3.20	10-12	7/8	2.04	1.20	10-12
3/8	0.376	2.55	10-12	15/16	2.35	1.20	10-12
7/16	0.511	2.30	10-12	1	2.67	1.20	10-12
1/2	0.668	2.10	10-12	1 1/16	3.01	1.20 St.L.	10-12
9/16	0.845	1.85	10-12	1 1/8	3.38	1.20 St.L.	10-12
5/8	1.04	1.55	10-12	1 1/4	4.17	1.20 St.L.	10-12
11/16	1.26	1.35	10-12	1 3/8	5.05	1.20 St.L.	10-12
3/4	1.50	1.35	10-12	1 1/2	6.01	1.15 St.L.	10-12

COLD FINISHED HEXAGONS

Condition E—Surface 4

Size in Inches	Wt. per Ft., Lbs.	Size Extra	Random Lgths., Ft.	Size in Inches	Wt. per Ft., Lbs.	Size Extra	Random Lgths., Ft.
3/8	.414	3.55	10-12	15/16	2.59	1.45	10-12
7/16	.564	2.85	10-12	1	2.94	1.35	10-12
1/2	.736	2.20	10-12	1 1/16	3.32	1.35	10-12
9/16	.932	2.20	10-12	1 1/8	3.73	1.35	10-12
5/8	1.15	1.70	10-12	1 1/4	4.60	1.35	10-12
3/4	1.66	1.45	10-12	1 7/16	6.09	1.35	10-12
7/8	2.25	1.45	10-12	1 1/2	6.63	1.35	10-12

AIRCRAFT QUALITY ALLOY STEELS
4130—HEAT TREATED

Identification Colors: Gold and Green

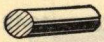
An Electric Furnace Product, Aircraft Quality, conforming to Specification MIL-S-6758

Superseding AN-S-684

4130 Chrome Molybdenum is ordered to the Military Aeronautical Specification. The bars after machining may be subjected to Magnaflux Inspection. These rounds are carried in the Heat-Treated and Stress Relieved condition. They will meet the minimum mechanical properties shown.

Stress Relieved to Minimize Warpage During Machining

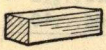
Mechanical Properties: 125,000-150,000 psi Tensile—
100,000 psi Min. Yield Strength at Offset 0.2%.
17% Min. Elongation in 2"; 55% Min. Reduction of Area



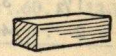
COLD FINISHED ROUNDS

Condition F—Surface 4

Size in Inches	Wt. per Ft., Lbs.	Size Extra	Random Lgths., Ft.
3/8	.376	2.55	10-12
7/16	.511	2.30	10-12
1/2	.668	2.10	10-12
9/16	.845	1.85	10-12
5/8	1.04	1.55	10-12
11/16	1.26	1.35	10-12
3/4	1.50	1.35	10-12
13/16	1.76	1.20	10-12
7/8	2.04	1.20	10-12
15/16	2.35	1.20	10-12
1	2.67	1.20	10-12
1 1/16	3.01	1.20	10-12
1 1/8	3.38	1.20	10-12
1 3/16	3.77	1.20	10-12
1 1/4	4.17	1.20	10-12
1 5/16	4.60	1.20	10-12
1 3/8	5.05	1.20	10-12
1 7/16	5.52	1.20	10-12
1 1/2	6.01	1.15	10-12



COLD FINISHED SQUARES



Condition F—Surface 4
In our Chicago Plant

Size in Inches	Wt. per Ft., Lbs.	Size Extra	Random Lgths., Ft.
1/4	.213	4.55	10-12
5/16	.332	4.00	10-12
3/8	.478	3.25	10-12
7/16	.651	2.95	10-12
1/2	.850	2.60	10-12
5/8	1.33	2.20	10-12
3/4	1.91	1.85	10-12
7/8	2.60	1.85	10-12
1	3.40	1.85	10-12

COLD FINISHED HEXAGONS

Condition F—Surface 4

Size in Inches	Wt. per Ft., Lbs.	Size Extra	Random Lgths., Ft.
3/8	.414	3.55	10-12
7/16	.564	2.85	10-12
1/2	.736	2.20	10-12
9/16	.932	2.20	10-12
5/8	1.15	1.70	10-12
3/4	1.66	1.45	10-12
7/8	2.25	1.45	10-12
15/16	2.59	1.45	10-12
1	2.94	1.35	10-12
1 1/16	3.32	1.35	10-12
1 1/4	4.60	1.35	10-12
1 7/16	6.09	1.35	10-12
1 1/2	6.63	1.35	10-12

AIRCRAFT QUALITY ALLOY STEELS

4130—HEAT TREATED

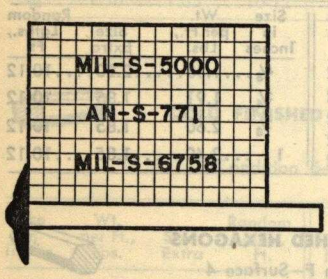
COLD FINISHED FLATS

Condition F—Surface 4

In our Chicago Plant

Size in Inches	Wt. per Ft., Lbs.	Size Extra	Random Lgths., Ft.
1/4x			
½	0.425	.07	10-12
¾	0.638	4.95	10-12
1	0.850	.4.95	10-12
3/8x			
¾	0.956	.3.60	10-12
1	1.28	3.60	10-12
1½	1.91	.3.40	10-12
1/2x			
¾	1.28	.2.45	10-12
1	1.70	2.45	10-12
1¼	2.13	2.35	10-12
1½	2.55	2.35	10-12
1¾	2.98	.2.05	10-12
2	3.40	2.05	10-12
2½	4.25	2.05	10-12
3	5.10	.2.05	10-12
5/8x			
1	2.13	.2.10	10-12
1½	3.19	2.05	10-12
2	4.25	.2.05	10-12

Size in Inches	Wt. per Ft., Lbs.	Size Extra	Random Lgths., Ft.
3/4x			
1	2.55	.2.05	10-12
1¼	3.19	2.05	10-12
1½	3.83	2.05	10-12
1¾	4.46	2.05	10-12
2	5.10	2.05	10-12
2½	6.38	.2.05	10-12
1x			
1¼	4.25	.2.05	10-12
1½	5.10	2.05	10-12
2	6.80	2.05	10-12
2½	8.50	.2.05	10-12
3	10.20	2.05	10-12
4	13.60	.3.05	10-12
1-1/4x			
1½	6.38	.2.05	10-12
2	8.50	2.05	10-12
3	12.75	2.05	10-12
4	17.00	.3.05	10-12
1-1/2x			
2	10.20	.1.95	10-12
3	15.30	1.95	10-12
4	20.40	.3.05	10-12



INTERESTED IN AERONAUTICAL SPECIFICATIONS?

With the aircraft industry expanding its capacity 16 times over, steels that meet the latest aeronautical specifications are becoming more and more important. Ryerson stocks now include alloy and stainless steels conforming to the widely used new MIL-S and AMS specifications. What's more, as additional steels are covered by the new specifications, our stocks will be quickly adjusted to conform. So call us for your requirements. You'll find us set up to meet them exactly. Ask for our new book describing the latest aeronautical specifications.

AIRCRAFT QUALITY ALLOY STEELS

4140—ANNEALED

Identification Colors: Orange and Green

An Electric Furnace Product, Aircraft Quality, conforming to

Specification MIL-S-5626

Superseding AN-QQ-S-752

4140 Chrome Molybdenum is ordered to the Military Aeronautical Specification. The bars, after machining, may be subjected to Magnaflux Inspection. The bars are annealed to a predominantly lamellar pearlitic structure which is better suited for general machining operations. Hardenability data is furnished with each shipment.

HOT ROLLED ROUNDS

Condition C—Surface 1

Size in Inches	Wt. per Ft., Lbs.	Size Extra	Random Lgths., Ft.
1 5/8	7.05	.50	14-16
1 3/4	8.18	.50	14-16
1 7/8	9.39	.50	14-16
2	10.68	.50	14-16
2 1/8	12.06	.50	14-16
2 1/4	13.52	.50	14-16
2 1/2	16.69	.50	14-16
2 5/8	18.40	.60	14-16
2 3/4	20.20	.60	14-16
2 7/8	22.07	.60	14-16
3	24.03	.60	14-16
3 1/4	28.21	.60	13-16
3 1/2	32.71	.60	13-16
3 3/4	37.55	.60	13-16
4	42.73	.60	13-16

COLD FINISHED ROUNDS

Condition C—Surface 4

Size in Inches	Wt. per Ft., Lbs.	Size Extra	Random Lgths., Ft.
1/2	.668	2.10	10-12
9/16	.845	1.85	10-12
5/8	1.04	1.55	10-12
11/16	1.26	1.35	10-12
3/4	1.50	1.35	10-12
13/16	1.76	1.20	10-12
7/8	2.04	1.20	10-12
15/16	2.35	1.20	10-12
1	2.67	1.20	10-12
1 1/16	3.01	1.20	10-12
1 1/8	3.38	1.20	10-12
1 3/16	3.77	1.20	10-12
1 1/4	4.17	1.20	10-12
1 5/16	4.60	1.20	10-12
1 3/8	5.05	1.20	10-12
1 7/16	5.52	1.20	10-12
1 1/2	6.01	1.15	10-12

AIRCRAFT QUALITY ALLOY STEELS

AMS 6415C—4340

ANNEALED

Identification Colors: Purple and Blue

An Electric Furnace Product, Aircraft Quality, also Conforms to

Specification MIL-S-5000

Superseding AN-QQ-S-756a

4340 Chrome Molybdenum is ordered to the Aeronautical Material Specification and will conform to the chemical analysis of AISI E4340. The bars after machining may be subjected to Magnaflux Inspection. They are annealed to provide the best machinability for this grade. A certificate of analysis and hardenability data is furnished with each shipment.

HOT ROLLED ROUNDS

Condition C—Surface 1

Size in Inches	Wt. per Ft., Lbs.	Size Extra	Random Lgths., Ft.
1 5/8	7.05	.50	Chgo.14-16
1 3/4	8.18	.50	Chgo.14-16
1 7/8	9.39	.50	Chgo.14-16
2	10.68	.50	14-16
2 1/8	12.06	.50	14-16
2 1/4	13.52	.50	14-16
2 3/8	15.06	.50	14-16
2 1/2	16.69	.50	14-16
2 5/8	18.40	.60	14-16
2 3/4	20.20	.60	14-16
2 7/8	22.07	.60	14-16
3	24.03	.60	14-16
3 1/8	26.08	.60	14-17
3 1/4	28.21	.60	14-17
3 1/2	32.71	.60	14-17
3 3/4	37.55	.60	14-17
4	42.73	.60	14-17
4 1/4	48.23	.60	14-17
4 1/2	54.08	.60	14-17
4 3/4	60.25	.60	14-17
5	66.76	.60	14-17
5 1/4	73.60	.60	14-17
5 1/2	80.78	.60	14-17
5 3/4	88.30	.60	14-17
6	96.13	.60	14-17

COLD FINISHED ROUNDS

Condition C—Surface 4

1/2	.668	2.10	10-12
9/16	.845	1.85	10-12
5/8	1.04	1.55	10-12
11/16	1.26	1.35	10-12
3/4	1.50	1.35	10-12
13/16	1.76	1.20	10-12
7/8	2.04	1.20	10-12
15/16	2.35	1.20	10-12
1	2.67	1.20	10-12
1 1/16	3.01	1.20	10-12
1 1/8	3.38	1.20	10-12
1 3/16	3.77	1.20	10-12
1 1/4	4.17	1.20	10-12
1 5/16	4.60	1.20	10-12
1 3/8	5.05	1.20	10-12
1 7/16	5.52	1.20	10-12
1 1/2	6.01	1.15	10-12
1 5/8	7.05	1.15	10-12
1 3/4	8.18	1.15	10-12
1 7/8	9.39	1.15	10-12
2	10.68	1.15	10-12
2 1/8	12.06	1.15	10-12
2 1/4	13.52	1.15	10-12
2 3/8	15.06	1.15	10-12
2 1/2	16.69	1.25	10-12
2 5/8	18.40	1.25	10-12
2 3/4	20.20	1.25	10-12
3	24.03	1.25	10-12
3 1/4	28.21	1.35	10-12
3 1/2	32.71	1.40	10-12
3 3/4	37.55	1.40	10-12
4	42.73	1.55	10-12

COLD FINISHED HEXAGONS

Condition C—Surface 4

In our Chicago Plant

5/8	1.15	1.70	10-12
3/4	1.66	1.45	10-12
7/8	2.25	1.45	10-12
15/16	2.59	1.45	10-12
1	2.94	1.35	10-12
1 1/16	3.32	1.35	10-12
1 1/4	4.60	1.35	10-12
1 7/16	6.09	1.35	10-12
1 5/8	7.78	1.50	10-12
1 13/16	9.67	1.50	10-12
2	11.78	1.50	10-12
2 1/4	14.91	1.55	10-12

AIRCRAFT QUALITY ALLOY STEELS

AMS 6324—8740 MODIFIED

ANNEALED

Identification Colors: Blue and Gold

Conforms to specification AMS 6324

8740 Modified is ordered to the AMS specification. The bars after machining may be subjected to Magnaflux Inspection. This steel is annealed for best machinability and a certificate of Analysis and Hardenability is furnished with each shipment.

COLD FINISHED ROUNDS

In our Chicago Plant

Size in Inches	Wt. per Ft., Lbs.	Size Extra	Random Lgths., Ft.
3/8	.376	2.55	10-12
7/16	.511	2.30	10-12
1/2	.668	2.10	10-12
9/16	.845	1.85	10-12
5/8	1.04	1.55	10-12
11/16	1.26	1.35	10-12
3/4	1.50	1.35	10-12
13/16	1.76	1.20	10-12
7/8	2.04	1.20	10-12
15/16	2.35	1.20	10-12
1	2.67	1.20	10-12
1 1/16	3.01	1.20	10-12
1 1/8	3.38	1.20	10-12
1 3/16	3.77	1.20	10-12
1 1/4	4.17	1.20	10-12
1 5/16	4.60	1.20	10-12
1 3/8	5.05	1.20	10-12
1 7/16	5.52	1.20	10-12
1 1/2	6.01	1.15	10-12
1 5/8	7.05	1.15	10-12
1 3/4	8.18	1.15	10-12
1 7/8	9.39	1.15	10-12
2	10.68	1.15	10-12

Helpful Literature

Helpful literature on many steel products and services is yours for the asking. Why not take advantage of the opportunity to secure this valuable data when needed?

If you are puzzled about what steel to use—or how to use it—tell us your problem. We will be glad to send literature and make suggestions.

RYERSON TOOL STEELS

Ryerson tool steels are made under our specifications to a narrow range of elements and controlled hardening characteristics. They are tested in advance by heat treatment for degree of surface hardness, depth of hardness and core structure.

Heat Treating instructions are furnished with every shipment of Ryerson Tool Steels. These instructions show the proper temperature and quenching media for the grade furnished as well as the hardness which will result after tempering at various temperatures. Annealing procedures, typical analysis and color identification are shown. Costly mix-ups are prevented and satisfactory heat treatment results made more certain with this extra service furnished automatically with Ryerson Tool Steels.

RYERSON V.D. TOOL STEEL

(Water Hardening)

Identification Color: Black

An all-purpose water hardening Carbon Vanadium Tool Steel with remarkable hardening characteristics that permit a wide variation in treatment with uniformly good results. Although easy to machine, V.D. Steel develops high hardness and toughness after heat treatment.

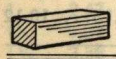
Used for punches, blanking and forming dies, shear blades, cold beading dies, rivet sets, pneumatic and hand chisels, cutters, taps, general shop tools and other applications where uniform, high quality water hardening carbon tool steel is required.

We recommend hardening in water at 1425°-1450° F. for most applications, but on dies and parts which require a greater depth of hardness, temperatures as high as 1550° F. may be safely used. On certain light, thin sections oil may be used as a quenching medium. Where extreme hardness is desired quenching may be done in brine. Due to the special analysis of V. D. Steel a greater variation in hardening temperature is permissible than in straight carbon steels. Even with a quench at 1550° F. the steel shows a fine grain structure and will retain its toughness. Send for descriptive bulletin.

Effect of Tempering on Disc, 2" Rd. x 5/8" Thick
V. D. Steel water quenched at 1450° F.

	As quenched	Tempering Temperature of 100°	200°	300°	400°	500°	600°	700°
Rockwell C...	67	67	67	65	62	59	55	51
Brinell	745	745	745	712	653	601	555	514
Scleroscope .	94	94	94	92	86	81	75	71

In any interpretation, allowance should be made for size of section, equipment used and method of quenching.



SQUARES—SPHEROIDIZED ANNEALED

Random Lengths 10′ to 12′

Size in Inches	Wt. per Ft., Lbs.	Size & Anlg. Extra	Size in Inches	Wt. per Ft., Lbs.	Size & Anlg. Extra
1/4	0.213	$37.00	1 1/2	7.65	$5.50
5/16	0.332	24.00	1 5/8	8.98	5.50
3/8	0.478	14.50	1 3/4	10.41	5.50
7/16	0.651	14.50	2	13.60	5.50
1/2	0.850	9.00	2 1/4	17.21	5.50
9/16	1.08	9.00	2 1/2	21.25	5.50
5/8	1.33	9.00	2 3/4	25.71	8.00
3/4	1.91	8.00	3	30.60	8.00
7/8	2.60	8.00	3 1/2	41.65	8.00
1	3.40	7.00	4	54.40	8.00
1 1/8	4.30	7.00	4 1/2	68.85	9.00
1 1/4	5.31	7.00	5	85.00	9.00
1 3/8	6.43	7.00	6	122.40	9.00

For Cutting Extras turn to last section of book.

RYERSON V.D. TOOL STEEL

(Water Hardening)

Identification Color: Black

ROUNDS—SPHEROIDIZED ANNEALED

Random Lengths 10′ to 12′

Size in Inches	Wt. per Ft., Lbs.	Size & Anlg. Extra
1/4	0.167	$12.50
5/16	0.261	10.50
3/8	0.376	9.00
7/16	0.511	9.00
1/2	0.668	8.00
9/16	0.845	8.00
5/8	1.04	6.50
11/16	1.26	6.50
3/4	1.50	6.50
13/16	1.76	6.50
7/8	2.04	6.50
15/16	2.35	6.50
1	2.67	5.50
1 1/16	3.01	5.50
1 1/8	3.38	5.50
1 3/16	3.77	5.50
1 1/4	4.17	5.50
1 5/16	4.60	5.50
1 3/8	5.05	5.50
1 7/16	5.52	5.50
1 1/2	6.01	3.50
1 5/8	7.05	3.50
1 3/4	8.18	3.50
1 7/8	9.39	3.50
2	10.68	3.50
2 1/8	12.06	3.50
2 1/4	13.52	3.50
2 3/8	15.06	$3.50
2 1/2	16.69	3.50
2 5/8	18.40	3.50
2 3/4	20.20	3.50
2 7/8	22.07	3.50
3	24.03	3.50
3 1/8	26.08	5.50
3 1/4	28.21	5.50
3 1/2	32.71	5.50
3 5/8	35.09	5.50
3 3/4	37.55	5.50
4	42.73	5.50
4 1/4	48.23	7.00
4 1/2	54.08	7.00
4 3/4	60.25	7.00
5	66.76	7.00
5 1/4	73.60	9.00
5 1/2	80.78	9.00
5 3/4	88.29	9.00
6	96.13	9.00
6 1/2	112.82	9.50
7	130.85	9.50
7 1/4	140.36	9.00
7 1/2	150.21	9.00
8	170.90	9.00
9	216.30	8.00

Certified Quality

TOOL STEELS

Are you familiar with the important extra service furnished at no additional charge with all Ryerson Tool Steels? Exacting specifications require that all Ryerson Tool Steels be made to a narrow range of elements and controlled hardening characteristics. Before going to you, they are tested for response to heat treatment and soundness of structure. What's more, heat treating instructions showing proper quenching temperatures and media, tempering temperatures and resulting hardnesses, goes right with your shipment. So why not investigate Certified Quality Ryerson Tool Steels? They'll give you the best possible performance and help reduce your shop costs.

V. D. Tool Steel 124-128
Ry-Alloy 129-133
Drill Rod 134-136
Tool Steel Sheets 136
TOOL STEEL
STAINLESS
TUBES
BABBITT
BLDG. PRODUCTS
MACH'Y
DATA
CUTTING EXTRAS
PLANTS OFFICES

RYERSON V.D. TOOL STEEL

(Water Hardening)

Identification Color: Black

FLATS—SPHEROIDIZED ANNEALED

Random Lengths 10′ to 12′

Size in Inches	Wt. per Ft., Lbs.	Size & Anlg. Extra
1/8x ½	0.213	$43.50
⅝	0.266	43.50
¾	0.319	30.50
⅞	0.372	30.50
1	0.425	24.00
1¼	0.531	17.50
1½	0.638	17.50
1¾	0.744	17.50
2	0.850	17.50
3	1.28	17.50
3/16x ½	0.319	24.00
⅝	0.398	24.00
¾	0.478	17.50
1	0.638	14.50
1¼	0.797	14.50
1½	0.956	14.50
1¾	1.12	14.50
2	1.28	14.50
2½	1.59	14.50
3	1.91	14.50
1/4x ½	0.425	17.50
⅝	0.531	17.50
¾	0.638	14.50
⅞	0.744	14.50
1	0.850	12.50
1¼	1.06	9.00
1½	1.28	9.00
1¾	1.49	9.00
2	1.70	9.00
2¼	1.91	9.00
2½	2.13	9.00
3	2.55	9.00
3½	2.98	9.00
4	3.40	9.00
4½	3.83	10.50
5	4.25	10.50
6	5.10	12.50
5/16x ½	0.531	14.50
¾	0.797	12.50
⅞	0.930	12.50
1	1.06	9.00
1¼	1.33	8.00
1½	1.59	8.00
1¾	1.86	8.00
5/16x2	2.13	$8.00
2½	2.67	8.00
3	3.19	8.00
3½	3.72	8.00
4	4.25	8.00
3/8x ½	0.638	12.50
⅝	0.797	12.50
¾	0.956	9.00
⅞	1.12	9.00
1	1.28	8.00
1⅛	1.43	8.00
1¼	1.59	8.00
1½	1.91	8.00
1¾	2.23	8.00
2	2.55	8.00
2¼	2.87	8.00
2½	3.19	8.00
3	3.83	8.00
3½	4.46	8.00
4	5.10	8.00
5	6.38	9.00
6	7.65	10.50
7/16x1¼	1.86	8.00
1/2x ⅝	1.06	9.00
¾	1.28	8.00
⅞	1.49	8.00
1	1.70	8.00
1⅛	1.91	8.00
1¼	2.13	8.00
1½	2.55	7.00
1⅝	2.76	7.00
1¾	2.98	7.00
2	3.40	7.00
2¼	3.83	7.00
2½	4.25	7.00
3	5.10	7.00
3½	5.95	8.00
4	6.80	8.00
4½	7.65	9.00
5	8.50	9.00
6	10.20	10.50

(Continued)

For Cutting Extras turn to last section of book.

RYERSON V.D. TOOL STEEL

(Water Hardening)

Identification Color: Black

FLATS—SPHEROIDIZED ANNEALED

Random Lengths 10′ to 12′

Size in Inches	Wt. per Ft., Lbs.	Size & Anlg. Extra
5/8x ¾	1.59	$8.00
⅞	1.86	8.00
1	2.13	7.00
1⅛	2.39	7.00
1¼	2.66	7.00
1½	3.19	7.00
1¾	3.72	7.00
2	4.25	7.00
2¼	4.78	7.00
2½	5.31	7.00
2¾	5.84	7.00
3	6.38	7.00
3½	7.44	8.00
4	8.50	8.00
4½	9.56	9.00
5	10.63	9.00
6	12.70	10.50
3/4x ⅞	2.23	8.00
1	2.55	7.00
1¼	3.19	7.00
1½	3.83	5.50
1¾	4.46	5.50
2	5.10	5.50
2¼	5.74	5.50
2½	6.38	5-50
2¾	7.01	5.50
3	7.65	5.50
3½	8.93	8.00
4	10.20	8.00
4½	11.48	9.00
5	12.75	9.00
5½	14.03	10.50
6	15.30	10.50
7/8x1¼	3.72	7.00
1½	4.46	5.50
1¾	5.21	5.50
2	5.95	5.50
2½	7.44	5.50
3	8.93	5.50
4	11.90	8.00
5	14.88	9.00
6	17.85	10.50
1x 1¼	4.25	7.00
1½	5.10	5.50
1¾	5.95	5.50
2	6.80	5.50
2¼	7.65	5.50
2½	8.50	5.50
2¾	9.35	5.50
3	10.20	5.50
3½	11.90	8.00
1x 4	13.60	$8.00
4½	15.30	9.00
5	17.00	9.00
6	20.40	10.50
7	23.80	10.50
8	27.20	12.00
9	30.60	12.50
10	34.00	14.00
1-1/4x1½	6.38	5.50
1¾	7.44	5.50
2	8.50	5.50
2¼	9.56	5.50
2½	10.63	5.50
3	12.75	5.50
3½	14.88	8.00
4	17.00	8.00
4½	19.13	9.00
5	21.25	9.00
5½	23.38	9.00
6	25.50	9.00
7	29.75	9.50
8	34.00	10.50
1-1/2x2	10.20	5.50
2½	12.75	5.50
3	15.30	5.50
3½	17.85	8.00
4	20.40	8.00
4½	22.95	9.00
5	25.50	9.00
6	30.60	9.00
7	35.70	9.50
8	40.80	9.50
10	51.00	10.50
1-3/4x2	11.90	5.50
2½	14.88	5.50
3	17.85	8.00
3½	20.83	8.00
4	23.80	8.00
4½	26.78	9.00
5	29.75	9.00
6	35.70	9.00
2x 2¼	15.30	5.50
2½	17.00	5.50
3	20.40	8.00
3½	23.80	8.00
4	27.20	8.00
5	34.00	9.00
6	40.80	9.00
8	54.40	9.50
12	81.60	12.50

(Continued)

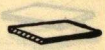
For Cutting Extras turn to last section of book.

RYERSON V.D. TOOL STEEL

(Water Hardening)

Identification Color: Black

FLATS—SPHEROIDIZED ANNEALED



Random Lengths 10′ to 12′

Size in Inches	Wt. per Ft., Lbs.	Size & Anlg. Extra
(Continued)		
2-1/4x2½	19.13	$5.50
3	22.95	8.00
3½	26.78	8.00
4	30.60	8.00
4½	34.43	9.00
5	38.25	9.00
6	45.90	9.00
7	53.55	9.50
8	61.20	9.50
2-1/2x3	25.50	$8.00
3½	29.75	8.00
4	34.00	8.00
4½	38.25	9.00
5	42.50	9.00
6	51.00	9.00
3x 4	40.80	8.00
5	51.00	9.00
6	61.20	9.00

BILLETS—SQUARES, ANNEALED

Size in Inches	Approx. Wt. per Ft., Lbs.	Size & Anlg. Extra	Random Lengths, Feet
4x4	54.40	Base	6
6x6	122.40	"	6

RYERSON V.D. CHISEL STEEL

(Water Hardening)

V.D. Chisel Steel is a specially developed water hardening Carbon-Molybdenum steel for hand and pneumatic chisels.

OCTAGONS—NOT ANNEALED

Random Lengths 12′ to 14′

Size in Inches	Wt. per Ft., Lbs.	Size Extra
¼	0.176	$9.00
5/16	0.275	7.00
⅜	0.396	5.50
7/16	0.539	5.50
½	0.704	4.50
⅝	1.10	3.00
¾	1.58	3.00
⅞	2.16	$3.00
1	2.82	2.00
1⅛	3.57	2.00
1¼	4.40	2.00
1½	6.34	Base
1¾	8.63	"

HEXAGONS—NOT ANNEALED

Random Lengths 12′ to 14′

¼	0.184	$9.00
5/16	0.288	7.00
⅜	0.414	5.50
7/16	0.564	5.50
½	0.736	4.50
⅝	1.15	3.00
¾	1.66	$3.00
⅞	2.25	3.00
1	2.94	2.00
1⅛	3.73	2.00
1¼	4.60	2.00
1½	6.63	Base

RY-ALLOY TOOL STEEL

(Oil Hardening)

Identification Color: Red

An oil hardening tool steel which combines high hardness and deep hardness penetration with minimum distortion and freedom from cracking. As Ry-Alloy has a very dense structure, it should be heated slowly, evenly, and for a sufficient length of time to insure uniform heat penetration all the way to the center of the pieces being hardened.

Applications include cams, rolls, thread rolling dies, thread chasers, blanking dies and punches, drill bushings, gauges, plastic forming dies, and other parts requiring hardness, toughness and minimum distortion in hardening. Descriptive bulletin will be sent on request.

HEAT TREATMENT

Forging: 1675° F.—1950° F. Normalizing: 1625° F.

Hardening: In oil 1400° F.—1475° F. Annealling: 1400° F.

Hardness test on 1½" Rd. specimen oil quenched at 1420° F. and tempered as indicated:

Tempering Temp.	Rockwell C Hardness	Tempering Temp.	Rockwell C Hardness	Tempering Temp.	Rockwell C Hardness
As Quenched	64	400° F.	60	600° F.	51
300° F.	62½	500° F.	57	700° F.	47

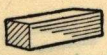
ROUNDS
Spheroidized Annealed

Size in Inches	Wt. per Ft. Lbs.	Size & Anlg. Extra	Stock Lgths., Ft.	Size in Inches	Wt. per Ft., Lbs.	Size & Anlg. Extra	Stock Lgths., Ft.
7/16	0.511	$9.00	12-14	3⅛	26.08	$5.50	12-14
½	0.668	8.00	12-14	3¼	28.21	5.50	12-14
⅝	1.04	6.50	12-14	3½	32.71	5.50	12-14
¾	1.50	6.50	12-14	3¾	37.55	5.50	12-14
⅞	2.04	6.50	12-14	4	42.73	5.50	12-14
1	2.67	5.50	12-14	4¼	48.23	7.00	12-14
1⅛	3.38	5.50	12-14	4½	54.08	7.00	12-14
1¼	4.17	5.50	12-14	4¾	60.25	7.00	12-14
1⅜	5.05	5.50	12-14	5	66.76	7.00	12-14
1½	6.01	3.50	12-14	5¼	73.60	9.00	12-14
1⅝	7.05	3.50	12-14	5½	80.78	9.00	12-14
1¾	8.18	3.50	12-14	5¾	88.29	9.00	12-14
1⅞	9.39	3.50	12-14	6	96.13	9.00	12-14
2	10.68	3.50	12-14	6¼	104.31	9.50	12-14
2⅛	12.06	3.50	12-14	6½	112.82	9.50	12-14
2¼	13.52	3.50	12-14	6¾	121.67	9.50	12-14
2⅜	15.06	3.50	12-14	7	130.85	9.50	12-14
2½	16.69	3.50	12-14	7½	150.21	9.00	12-14
2⅝	18.40	3.50	12-14	8	170.90	9.00	12-14
2¾	20.20	3.50	12-14	8¼	181.75	8.00	12-14
2⅞	22.07	3.50	12-14	8½	192.93	8.00	12-14
3	24.03	3.50	12-14	9	216.30	8.00	12-14

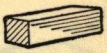
For Cutting Extras turn to last section of book.

RY-ALLOY TOOL STEEL

(Oil Hardening)
Identification Color: Red



SQUARES
Spheroidized Annealed



Size in Inches	Wt. per Ft., Lbs.	Size & Anlg. Extra	Stock Lgths., Ft.
¾	1.91	$8.00	12-14
1	3.40	7.00	12-14
1¼	5.31	7.00	12-14
1½	7.65	5.50	12-14
1¾	10.41	5.50	12-14
2	13.60	5.50	12-14
2¼	17.21	5.50	12-14
2½	21.25	5.50	12-14
2¾	25.71	8.00	12-14
3	30.60	8.00	12-14
3½	41.65	8.00	12-14
4	54.40	8.00	12-14
4½	68.85	9.00	12-14
6	122.40	9.00	12-14

FLATS
Spheroidized Annealed
Random Lengths 12 to 14 ft.

Size in Inches	Wt. per Ft., Lbs.	Size & Anlg. Extra
3/8x1	1.28	$8.00
1½	1.91	8.00
2	2.55	8.00
4	5.10	8.00
6	7.65	10.50
1/2x1	1.70	8.00
1¼	2.13	8.00
1½	2.55	7.00
1¾	2.98	7.00
2	3.40	7.00
2¼	3.83	7.00
2½	4.25	7.00
3	5.10	7.00
4	6.80	8.00
4½	7.65	9.00
5	8.50	9.00
5½	9.35	10.50
6	10.20	10.50
5/8x1	2.13	7.00
1¼	2.66	7.00
1½	3.19	7.00
1¾	3.72	7.00
2	4.25	7.00
2¼	4.78	7.00
2½	5.31	7.00
2¾	5.84	7.00
3	6.38	7.00
3½	7.44	8.00
4	8.50	8.00
4½	9.56	9.00
5	10.63	9.00
6	12.75	10.50

Size in Inches	Wt. per Ft., Lbs.	Size & Anlg. Extra
3/4x1	2.55	$7.00
1¼	3.19	7.00
1½	3.83	5.50
1¾	4.46	5.50
2	5.10	5.50
2¼	5.74	5.50
2½	6.38	5.50
2¾	7.01	5.50
3	7.65	5.50
3½	8.93	8.00
4	10.20	8.00
4½	11.48	9.00
5	12.75	9.00
5½	14.03	10.50
6	15.30	10.50
8	20.40	12.50
1x 1¼	4.25	7.00
1½	5.10	5.50
2	6.80	5.50
2¼	7.65	5.50
2½	8.50	5.50
3	10.20	5.50
3½	11.90	8.00
4	13.60	8.00
4½	15.30	9.00
5	17.00	9.00
5½	18.70	10.50
6	20.40	10.50
7	23.80	10.50
8	27.20	12.00
1-1/4x1½	6.38	5.50
2	8.50	5.50
2½	10.63	5.50

(Continued)

For Cutting Extras turn to last section of book.

RY-ALLOY TOOL STEEL

(Oil Hardening)

Identification Color: Red

FLATS

Spheroidized Annealed

Random Lengths 12 to 14 ft.

Size in Inches	Wt. per Ft., Lbs.	Size & Anlg. Extra
(Continued)		
1-1/4x3	12.75	$5.50
3½	14.88	8.00
4	17.00	8.00
4½	19.13	9.00
5	21.25	9.00
5½	23.38	9.00
6	25.50	9.00
8	34.00	10.50
1-1/2x2	10.20	5.50
2½	12.75	5.50
3	15.30	5.50
3½	17.85	8.00
4	20.40	8.00
4½	22.95	9.00
5	25.50	9.00
5½	28.05	9.00
6	30.60	9.00
6½	33.15	9.50
7	35.70	9.50
7½	38.25	9.50
8	40.80	9.50
10	51.00	10.50
1-3/4x2	11.90	5.50
2¼	13.39	5.50
2½	14.87	5.50
3	17.85	8.00
3½	20.83	8.00
4	23.80	8.00
4½	26.78	9.00
5	29.75	9.00
5½	32.73	9.00
6	35.70	9.00
6½	38.68	9.50
7	41.65	9.50
7½	44.63	9.50
8	47.60	9.50
10	59.50	10.50
2x 2½	17.00	5.50
3	20.40	8.00
3½	23.80	8.00
2x 4	27.20	$8.00
4½	30.60	9.00
5	34.00	9.00
5½	37.40	9.00
6	40.80	9.00
7	47.60	9.50
8	54.40	9.50
10	68.00	10.50
2-1/4x2½	19.13	5.50
3	22.95	8.00
3½	26.78	8.00
4	30.60	8.00
4½	34.43	9.00
5	38.25	9.00
5½	42.08	9.00
6	45.90	9.00
2-1/2x3	25.50	8.00
3½	29.75	8.00
4	34.00	8.00
4½	38.25	9.00
5	42.50	9.00
5½	46.75	9.00
6	51.00	9.00
8	68.00	9.50
10	85.00	10.50
3x 3½	35.70	8.00
4	40.80	8.00
4½	45.90	9.00
5	51.00	9.00
6	61.20	9.00
7	71.40	9.50
8	81.60	9.50
10	102.00	10.50
3-1/2x4	47.60	8.00
5	59.50	9.00
5½	65.45	9.00
6	71.40	9.00
8	95.20	9.50
4x 6	81.60	9.00

For Cutting Extras turn to last section of book.

RY-ALLOY GROUND FLAT STOCK

(Oil Hardening)

For Templates, Jigs, Fixtures, Gauges, Stamps, Shims, Machine Parts, Tools, Dies, etc.

Ry-Alloy Ground Flat Stock is made from a high grade, non-deforming, oil hardening tool steel. Accurately ground on all four sides, it is produced in standard thicknesses within limits of plus or minus .001". The sides and ends are square, parallel, and accurate to dimension. The steel is annealed for easy machining, free from decarburization, and may be hardened to Rockwell C-61 hardness or higher. Each piece is individually packed in a grease-proof envelope, marked with size and hardening instructions.

Machinists, tool makers, and die makers find Ry-Alloy Ground Flat Stock ideal for making templates, jigs, gauges, fixtures, stamps, shims, machine parts, tools, dies, etc. Small parts that must have a smooth surface and be accurate to thickness, are produced quickly, easily and economically.

18" LENGTHS†

In our Chicago, New York and Philadelphia Plants

Thickness & Width, Inches	Wt. per Piece, Lbs.
1/64x	
1	.08
1½	.12
2	.16
2½	.20
3	.24
4	.32
1/32x	
½	.08
¾	.12
1	.16
1½	.24
2	.32
2½	.40
3	.48
3½	.56
4	.64
5	.80
6	.96
3/64x	
½	.12
1	.24
1½	.36
2	.48
2½	.60
3	.72
4	.96
5	1.20
6	1.43
1/16x	
½	.16
¾	.24
1	.32
1¼	.40
1½	.48
2	.64
2½	.80
3	.96
3½	1.12
4	1.27
5	1.59
6	1.91
3/32x	
½	.24
¾	.36
1	.48
1½	.72
2	.96
2½	1.20
3	1.43
3½	1.67
4	1.91
5	2.39
6	2.87

(Continued)

†Prompt shipment of other lengths from Mill.

RY-ALLOY GROUND FLAT STOCK

Thickness & Width, Inches	Wt. per Piece, Lbs.
(Continued)	
1/8x	
1/2	.32
3/4	.48
1	.64
1 1/4	.80
1 1/2	.96
2	1.27
2 1/2	1.59
3	1.91
3 1/2	2.23
4	2.55
5	3.19
6	3.82
5/32x	
1/2	.40
3/4	.60
1	.80
1 1/2	1.20
2	1.59
2 1/2	1.99
3	2.39
3 1/2	2.79
4	3.19
3/16x	
1/2	.48
3/4	.72
1	.96
1 1/4	1.20
1 1/2	1.43
2	1.91
2 1/2	2.39
3	2.87
3 1/2	3.35
4	3.82
5	4.78
6	5.74
7/32x	
1	1.12
1 1/2	1.67
2	2.23
2 1/2	2.79
3	3.35
4	4.46
1/4x	
1/4	.32
1/2	.64
3/4	.96
1	1.27
1 1/2	1.91
2	2.55
2 1/2	3.19
3	3.82
3 1/2	4.47
4	5.10
5	6.37
6	7.65
5/16x	
5/16	.50
1/2	.80
1	1.59

Thickness & Width, Inches	Wt. per Piece, Lbs.
5/16x	
1 1/2	2.39
2	3.19
2 1/2	3.98
3	4.78
4	6.38
5	7.97
6	9.56
3/8x	
3/8	.72
1/2	.96
3/4	1.43
1	1.91
1 1/2	2.87
2	3.82
2 1/2	4.78
3	5.74
4	7.65
5	9.56
6	11.48
1/2x	
1/2	1.27
3/4	1.91
1	2.55
1 1/2	3.83
2	5.10
3	7.65
4	10.20
5	12.75
6	15.30
5/8x	
5/8	1.99
1	3.19
2	6.37
3	9.56
4	12.75
5	15.94
6	19.13
3/4x	
3/4	2.87
1	3.83
2	7.65
3	11.48
4	15.30
5	19.13
6	22.95
1x	
1	5.10
2	10.20
3	15.30
4	20.40
6	30.60
8	40.80
10	51.00
1 1/4x	
2	12.75
4	25.50
6	38.25
8	51.00
10	63.75

RYERSON CARBON STEEL DRILL ROD

A high grade drill rod made of good tool steel and finished with extreme accuracy to insure a smooth finish.

A quality product recommended for drills, taps, dies and other uses where accuracy, stiffness and toughness are essential.

POLISHED ROUNDS

3 Foot Lengths

Sizes Marked * also Carried in 12 Foot Lengths

Guaranteed to be free from surface decarburization

Decimal Diam.	Size Stubs Ga.	Wt. Per Ft., Lbs.	†List Price Per Lb.
.013	80	.0004	$35.00
.014	79	.0005	35.00
.015	78	.0006	35.00
.0156	1/64	.0007	35.00
.016	77	.0007	35.00
.018	76	.0009	17.00
.020	75	.0011	17.00
.022	74	.0013	11.00
.023	73	.0014	11.00
.024	72	.0015	11.00
.026	71	.0018	7.50
.027	70	.0020	7.50
.029	69	.0023	7.50
.030	68	.0024	7.50
.031	67	.0025	5.00
.0312	1/32	.0026	5.00
.032	66	.0027	5.00
.033	65	.0029	5.00
.035	64	.0033	5.00
.036	63	.0035	5.00
.037	62	.0037	5.00
.038	61	.0038	5.00
.039	60	.0040	5.00
.040	59	.0043	3.50
.041	58	.0045	3.50
.042	57	.0050	3.50
.045	56	.0060	3.50
.0468	3/64	.0060	3.50
.050	55	.0070	2.75
.055	54	.0080	2.75
.058	53	.0090	2.75
.0625	1/16	.0100	2.25
.063	52	.0110	2.25
.066	51	.0120	2.25
.069	50	.0130	2.25
.072	49	.0140	2.25
.075	48	.0150	2.25
.077	47	.0160	2.25
.0781	5/64	.0170	1.75
.079	46	.0170	1.75
.081	45	.0180	1.75
.085	44	.0190	1.75
.088	43	.0210	1.75
.092	42	.023	1.75
.0937	3/32	.023	1.75
.095	41	.024	1.60
.097	40	.025	1.60
.099	39	.026	1.60
.101	38	.028	1.60
.103	37	.029	1.60
.106	36	.030	1.60
.108	35	.031	$1.60
.1093	7/64	.031	1.45
.110	34	.032	1.45
.112	33	.034	1.45
.115	32	.036	1.45
.120	31	.039	1.45
.125	*1/8	.042	1.30
.127	30	.043	1.30
.134	29	.048	1.30
.139	28	.052	1.30
.1406	9/64	.052	1.15
.143	27	.055	1.15
.146	26	.057	1.15
.148	25	.059	1.15
.151	24	.061	1.15
.153	23	.063	1.15
.155	22	.065	1.15
.1562	*5/32	.066	1.05
.157	21	.066	1.05
.161	20	.069	1.05
.164	19	.072	1.05
.168	18	.076	1.05
.1718	11/64	.078	1.05
.172	17	.079	.95
.175	16	.082	.95
.178	15	.085	.95
.180	14	.087	.95
.182	13	.089	.95
.185	12	.092	.95
.1875	*3/16	.094	.85
.188	11	.094	.85
.191	10	.096	.85
.194	9	.099	.85
.197	8	.104	.85
.199	7	.106	.85
.201	6	.107	.85
.2031	13/64	.109	.80
.204	5	.109	.80
.207	4	.115	.80
.212	3	.121	.80
.2187	*7/32	.129	.75
.219	2	.129	.75
.227	1	.138	.75
.2343	15/64	.147	.70
.238	B	.150	.70
.242	C	.154	.70
.246	D	.161	.70
.250	*1/4	.167	.65
.257	F	.174	.65
.261	G	.181	.65
.2656	17/64	.187	.65

(Continued)

†Write for discounts.

RYERSON CARBON STEEL DRILL ROD

POLISHED ROUNDS

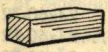
3 Foot Lengths

Sizes Marked * also Carried in 12 Foot Lengths

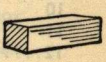
Guaranteed to be free from surface decarburization

Decimal Diam.	Number or Fraction	Wt. Per Ft., Lbs.	†List Price Per Lb.
(Continued)			
.277	J	.205	$0.65
.281	K	.212	.65
.2812	*9/32	.213	.65
.2968	19/64	.234	.65
.3125	*5/16	.260	.60
.316	O	.271	.60
.323	P	.277	.60
.3281	21/64	.287	.60
.3437	11/32	.313	.60
.3593	23/64	.344	.60
.375	*3/8	.375	.60
.377	V	.383	.60
.386	W	.400	.60
.3906	25/64	.407	.60
.4062	13/32	.437	.60
.4218	27/64	.472	.60
.4375	*7/16	.510	.60
.4531	29/64	.542	.60
.4687	15/32	.583	.60
.4843	31/64	.625	.60
.500	*1/2	.667	.55
.5156	33/64	.709	.55
.5312	17/32	.750	.55
.5468	35/64	.797	.55
.5625	*9/16	.844	.55
.5937	19/32	.937	.55
.6093	39/64	1.000	.55
.625	*5/8	1.042	$0.55
.6406	41/64	1.104	.55
.6562	21/32	1.145	.55
.6875	11/16	1.250	.55
.7031	45/64	1.312	.55
.7187	23/32	1.375	.55
.750	*3/4	1.500	.55
.7656	49/64	1.562	.55
.7812	25/32	1.625	.55
.8125	13/16	1.750	.55
.8437	27/32	1.896	.55
.875	*7/8	2.042	.55
.9062	29/32	2.188	.55
.9375	15/16	2.333	.55
.9687	31/32	2.531	.55
1.000	*1	2.666	.55
1.0625	1 1/16	3.010	.55
1.125	1 1/8	3.375	.55
1.1875	1 3/16	3.771	.55
1.250	1 1/4	4.167	.55
1.3125	1 5/16	4.600	.55
1.3750	1 3/8	5.049	.55
1.4375	1 7/16	5.512	.55
1.500	1 1/2	6.000	.55
1.625	1 5/8	7.05	.55
1.750	1 3/4	8.17	.55
2.000	2	10.68	.55

†Write for discounts.



SQUARES



Lime Drawn Quality

3 Foot Lengths

Size in Inches	Equiv. Decimal of Inch	Wt. Per Ft., Lbs.	†List Price Per Lb.
3/32	.0937	.030	$1.75
1/8	.125	.053	1.30
5/32	.1562	.083	1.05
3/16	.1875	.120	.85
7/32	.2187	Chgo. .163	.75
1/4	.250	.212	.65
5/16	.3125	.332	.60
3/8	.375	.478	$0.60
7/16	.4375	.651	.60
1/2	.500	.850	.55
9/16	.5625	Chgo. 1.076	.55
5/8	.625	1.328	.55
3/4	.750	1.913	.55
7/8	.875	2.603	.55
1	1.000	3.400	.55

†Write for discounts.

RYERSON CARBON STEEL DRILL ROD

LIME DRAWN QUALITY FLATS

3 Foot Lengths

Size in Inches	Wt. per Ft., Lbs.	*List Price per Lb.
1/16x 1/8	.027	$2.25
3/16	Chgo. .040	2.15
1/4	.053	2.05
3/8	Chgo. .080	2.05
1/2	.106	2.00
3/32x 3/16	.060	1.65
1/4	.080	1.65
1/8x 3/16	.080	1.30
1/2	.159	1.60
1/4	.106	1.20
3/8	.159	1.20
1/2	.213	1.15
5/8	.266	1.15
1	.425	1.15
5/32x 3/8	Chgo. .199	.95
3/16x 1/4	.159	.75
5/16	.199	.75
3/8	.239	.75
3/16x 1/2	.319	$0.70
5/8	.398	.70
3/4	.478	.70
1	.638	.70
1/4x 5/16	.266	.65
3/8	.319	.65
1/2	.425	.60
5/8	.531	.60
3/4	.638	.60
1	.850	.60
5/16x 3/8	.398	.60
1/2	.531	.60
1	1.06	.60
3/8x 5/8	.797	.60
3/4	.956	.60
1	1.275	.60
1/2x 3/4	1.275	.55
1	1.70	.55

*Write for discount.

RYERSON TOOL STEEL SHEETS

Suitable for small tools, springs, shims, scrapers, blades, saws, knives, and for other applications where a high grade of thin tool steel is required. Rolled from high grade Ryerson Tool Steel of about 1.00% carbon. Sheets have a smooth blue finish, protected by oil, and will harden in oil or water at approximately 1425° Fahrenheit. Selection of quenching medium depends upon degree of hardness desired.

Semi-Annealed—Stock Sizes

Thickness Inches, or B. W. Ga.	Est. Wt. per Lineal Ft., Lbs.	Sheet Size in Inches
1/4	20.40	24x60-72
3/16	15.31	24x60-72
10	10.93	24x60-72
11	9.79	24x60-72
12	8.89	24x60-72
13	7.75	24x60-72
14	6.77	24x60-72
15	5.89	24x60-72
16	5.31	24x60-72
18	4.00	24x60-72
19	3.43	24x60-72
20	2.85	24x60-72
21	2.61	24x60-72
22	2.28	24x60-72
23	2.04	24x60-72
24	1.80	24x60-72
25	1.63	24x60-72
26	1.47	24x60-72
27	1.31	24x60-72
28	1.15	24x60-72

ALLEGHENY STAINLESS TYPE NUMBERS

CHEMICAL ANALYSIS SPECIFICATIONS

Type No.	Carbon	Mn. Max.	Si. Max.	Chromium	Nickel	Other Elements
301	Over .08/.15	2.00	1.00	16.00/18.00	6.00/ 8.00	
302	Over .08/.15	2.00	1.00	17.00/19.00	8.00/10.00	
302B	Over .08/.15	2.00	2.00/3.00	17.00/19.00	8.00/10.00	
303	.15 Max.	2.00	1.00	17.00/19.00	8.00/10.00	*
304	.08 Max.	2.00	1.00	18.00/20.00	8.00/11.00	
305	.12 Max.	2.00	1.00	17.00/19.00	10.00/13.00	
308	.08 Max.	2.00	1.00	19.00/21.00	10.00/12.00	
309	.20 Max.	2.00	1.00	22.00/24.00	12.00/15.00	
309S	.08 Max.	2.00	1.00	22.00/24.00	12.00/15.00	
309SCb	.08 Max.	2.00	1.00	22.00/24.00	12.00/15.00	Cb.10xC.Min
310	.25 Max.	2.00	1.50	24.00/26.00	19.00/22.00	
314	.25 Max.	2.00	1.50/3.00	23.00/26.00	19.00/22.00	
316	.10 Max.	2.00	1.00	16.00/18.00	10.00/14.00	Mo.2.00/3.00
317	.10 Max.	2.00	1.00	18.00/20.00	11.00/14.00	Mo.3.00/4.00
318	.08 Max.	2.50	1.00	17.00/19.00	13.00/15.00	Mo.2.00/2.75 Cb.10xC.Min., 1.00 Max.
321	.08 Max.	2.00	1.00	17.00/19.00	8.00/11.00	Ti.5xC.Min.
347	.08 Max.	2.00	1.00	17.00/19.00	9.00/12.00	Cb.10xC.Min.†
403	.15 Max.	1.00	.50	11.50/13.00		
405	.08 Max.	1.00	1.00	11.50/13.50		Alum. .10/.30
410	.15 Max.	1.00	1.00	11.50/13.50		
414	.15 Max.	1.00	1.00	11.50/13.50	1.25/ 2.50	
416	.15 Max.	1.25	1.00	12.00/14.00		*
420	Over .15	1.00	1.00	12.00/14.00		
420F	Over .15	1.25	1.00	12.00/14.00		*
430	.12 Max.	1.00	1.00	14.00/18.00		
430F	.12 Max.	1.25	1.00	14.00/18.00		*
431	.20 Max.	1.00	1.00	15.00/17.00	1.25/ 2.50	
440A	.60/ .75	1.00	1.00	16.00/18.00		Mo.0.75 Max.
440B	.75/ .95	1.00	1.00	16.00/18.00		Mo.0.75 Max.
440C	.95/1.20	1.00	1.00	16.00/18.00		Mo.0.75 Max.
440F	.95/1.20	1.25	1.00	16.00/18.00		*
442	.25 Max.	1.00	1.00	18.00/23.00		
446	.35 Max.	1.00	1.00	23.00/27.00		N_2 0.25 Max.

Note: Phosphorus .04 Max. and Sulphur .03 Max.—all Types except 303, 416, 420 F, 430 F, and 440 F.

*Types 303, 416, 420 F, 430 F and 440 F—Phosphorus or Sulphur or Selenium .07 Min., Molybdenum or Zirconium .60 Max.

†Columbium—Tantalum combination is temporarily substituted. Cb.+Ta.=11xC.Min.; 1.35 Max.

The chemical analyses of the "TP" designations used in the A.S.T.M. specifications covering our stocks of Seamless and Welded Stainless Pipe and Tubing vary slightly from the analyses of the AISI Type numbers shown above.

STANDARD STAINLESS STEEL SHEET & PLATE FINISHES

No. 1 finish is hot rolled, annealed and pickled.

No. 2B finish is annealed, pickled, and bright cold rolled.

No. 2D finish is annealed, pickled and dull cold rolled.

No. 4 finish is standard bright, ground and polished.

Sheets 139-143
Aircraft Quality Stainless Sheets 144
Plates 145, 146
Stainless Bars 147-152
Tubing 153-155
Seamless & Welded Pipe 156-158
Pipe Fittings 159
Fastenings 160
Electrodes 161
STAINLESS
TUBES
BABBITT
BLDG. PRODUCTS
MACH'Y
DATA
CUTTING EXTRAS
PLANTS OFFICES

A.S.T.M. A-240-44 SPECIFICATIONS

Stainless Sheets & Plates

CHEMICAL REQUIREMENTS

	Grade "S" Type 304 Modified	Grade "M" Type 316 Modified	Grade "C" Type 347 Modified
Carbon	.08 Max.	.08 Max.	.08 Max.
Manganese	2.50 "	2.50 "	2.50 "
Phosphorus	.035 "	.035 "	.035 "
Sulphur	.030 "	.030 "	.030 "
Silicon	.85 "	.85 "	.85 "
Chromium	18.00 Min.	17.00 Min.	17.00 Min.
Nickel	8.00 "	10.00 "	9.50 "
Molybdenum	...	2.00 "	...
Columbium	...	...	10X C. " 1.00% Max.

MECHANICAL PROPERTIES

Tensile Strength	75,000psi Min.	75,000psi Min.	75,000psi Min.
Yield Strength	30,000psi "	30,000psi "	30,000psi "
Elong. in 2"	30% "	30% "	30% "
Brinell Hardness	202 Max.	217 Max.	202 Max.
Rockwell Hardness	B88 "	B95 "	B88 "
Cold Bend	180°	180°	180°

INTERGRANULAR CORROSION TEST

Corrosion test specimens should be boiled for 72 hours in Strauss reagent. Following this treatment, material should not have lost its metallic ring and should also withstand Bend Test as outlined in the specifications.

A.S.T.M. A-312-48T SPECIFICATIONS

Seamless & Welded Stainless Pipe

CHEMICAL REQUIREMENTS

Symbol TP304

Carbon	.08 Max.
Manganese	2.00 Max.
Phosphorus	.03 Max.
Sulphur	.03 Max.
Silicon	.75 Max.
Nickel	8.00/11.00
Chromium	18.00/20.00

MECHANICAL PROPERTIES

Tensile Strength 75,000 psi. Min.
Yield Point ....30,000 psi. Min.
Elongation ...See Specification

HYDROSTATIC TEST

Shall be tested to a hydrostatic pressure which will produce a stress 50% of the minimum Yield Point specified above except it shall not exceed 2500 psi for nominal sizes 3" and under or 2800 psi for over 3".

A.S.T.M. A-269-47 SPECIFICATIONS

Seamless & Welded Stainless Tubing

CHEMICAL REQUIREMENTS

	TP304	TP316
Carbon	.08 Max.	.08 Max.
Manganese	2.00 Max.	2.00 Max.
Phosphorus	.03 Max.	.03 Max.
Sulphur	.03 Max.	.03 Max.
Silicon	.75 Max.	.75 Max.
Nickel	8.0/11.0	11.0/14.0
Chromium	18.0/20.0	16.0/18.0
Molybdenum	...	2.0/ 3.0

HYDROSTATIC TEST

Shall be tested at a minimum hydrostatic pressure of 1000 psi provided it does not exceed 15,000 psi fibre stress. Otherwise test pressure to produce 15,000 psi fibre stress shall be used.

Note: The above is a summary of the important requirements of these specifications. For detailed information refer to A.S.T.M. Standards or get in touch with your nearest Ryerson office.

ALLEGHENY STAINLESS SHEETS

TYPE 302

No. 2B Finish—Annealed, Pickled and Cold Rolled

See page 144 for Type 302, No. 2B Sheets, Aircraft Quality Conforming to MIL-S-5059, Comp. G.

Stainless Steel Ga. & Size Inches	Wt. per Sq. Ft.	Est. Wt. per Sheet
10 Ga. (.141")	5.906	
36x120		177.2
48x120		236.2
11 Ga. (.125")	5.250	
36x 96		126.0
36x120		157.5
48x120		210.0
48x144	Clev.	252.0
12 Ga. (.109")	4.594	
36x 96		110.3
36x120		137.8
42x120		160.8
48x 96		146.9
48x120		183.8
13 Ga. (.094")	3.938	
36x 96		94.5
36x120		118.1
48x120		157.5
14 Ga. (.078")	3.281	
30x 96		65.6
36x 96		78.7
36x120		98.4
42x120		114.8
48x 96		104.9
48x120		131.2
60x144		196.9
16 Ga. (.063")	2.625	
30x 96		52.5
30x120		65.6
36x 96		63.0
36x120		78.8
42x120		91.9
48x 96		84.0
48x120		105.0
56x120	Chgo.	122.5
18 Ga. (.050")	2.100	
30x 96		42.0
30x120		52.5
18 Ga. (.050")	2.100	
36x 96		50.4
36x 96		50.4
36x120		63.0
42x120		73.5
48x 96		67.2
48x120		84.0
56x120	Chgo.	98.0
20 Ga. (.038")	1.575	
30x 96		31.5
30x120		39.4
36x 96		37.8
36x120		47.3
42x120		55.1
48x 96		50.4
48x120		63.0
22 Ga. (.031")	1.313	
24x 96		21.0
30x 96		26.3
30x120		32.8
36x 96		31.5
36x120		39.4
48x 96		42.0
48x120		52.5
24 Ga. (.025")	1.050	
30x 96		21.0
30x120		26.3
36x 96		25.2
36x120		31.5
48x 96		33.6
48x120		42.0
26 Ga. (.019")	.788	
24x 96	Chgo.	12.6
30x 96		15.8
30x120		19.7
36x 96		18.9
36x120		23.6
28 Ga. (.015")	.656	
36x120		19.7

ALLEGHENY STAINLESS SHEETS

TYPE 302

Polished—No. 4 Finish One Side

Conforms to MIL-S-5059, Comp. G

Stainless Steel Ga. & Size Inches	Wt. per Sq. Ft.	Est. Wt. per Sheet
10 Ga. (.141") 5.906		
36x120		177.2
48x120		236.2
54x120	Chgo.	265.8
11 Ga. (.125") 5.250		
36x 96		126.0
36x120		157.5
48x 96		168.0
48x120		210.0
12 Ga. (.109") 4.594		
30x120		114.8
36x 96		110.3
36x120		137.8
42x120	Chgo.	160.8
48x 96		147.0
48x120		183.8
13 Ga. (.094") 3.938		
36x 96		94.5
48x120		157.5
14 Ga. (.078") 3.281		
30x 96		65.6
30x120		82.0
36x 96		78.7
36x120		98.4
42x 96		91.8
42x120		114.8
48x 96		104.9
48x120		131.2
48x144	Chgo.	157.5
60x144		196.9
16 Ga. (.063") 2.625		
30x 96		52.5
30x120		65.6
36x 96		63.0
36x120		78.8
42x120		91.9
48x 96		84.0
48x120		105.0
60x144	Clev.	157.5

Stainless Steel Ga. & Size Inches	Wt. per Sq. Ft.	Est. Wt. per Sheet
18 Ga. (.050") 2.100		
30x 96		42.0
30x120		52.5
36x 96		50.4
36x120		63.0
42x120		73.5
48x 96		67.2
48x120		84.0
20 Ga. (.038") 1.575		
24x 96		25.2
30x 96		31.5
30x120		39.4
36x 96		37.8
36x120		47.3
42x120	Chgo.	55.1
48x 96		50.4
48x120		63.0
22 Ga. (.031") 1.313		
24x 96		21.0
30x 96		26.3
30x120		32.8
36x 96		31.5
36x120		39.4
48x 96		42.0
48x120		52.5
24 Ga. (.025") 1.050		
24x 96		16.8
24x120		21.0
30x 96		21.0
30x120		26.3
36x 96		25.2
36x120		31.5
42x120		35.0
48x 96		33.6
48x120		42.0
26 Ga. (.019") .788		
24x 96		12.6
30x 96		15.8
30x120		19.7
36x 96		18.9
36x120		23.6

ALLEGHENY STAINLESS SHEETS

TYPE 304

No. 2B Finish—Annealed, Pickled and Cold Rolled

Conforms to MIL-S-854, Class 1, Condition a, Finish 2

Stainless Steel Ga. & Size Inches	Wt. per Sq. Ft.	Est. Wt. per Sheet
10 Ga. (.141") 5.906		
36x120		177.2
48x120		236.2
72x144		425.2
11 Ga. (.125") 5.250		
30x120		131.3
36x 96		126.0
36x120		157.5
48x 96		168.0
48x120		210.0
48x144	Clev.	252.0
60x144		315.0
72x144		378.0
12 Ga. (.109") 4.594		
30x120		114.9
36x 96		110.3
36x120		137.8
48x 96		146.9
48x120		183.8
60x144	Buff.	275.4
72x144		330.8
13 Ga. (.094") 3.938		
36x 96		94.5
48x120		157.5
14 Ga. (.078") 3.281		
30x120		82.0
36x 96		78.7
36x120		98.4
48x 96		104.9
48x120		131.2
60x144		196.9
72x144		236.2
16 Ga. (.063") 2.625		
30x 96		52.5
30x120		65.6
36x 96		63.0
16 Ga. (.063") 2.625		
36x120		78.8
48x 96	Clev.	84.0
48x120		105.0
60x144		157.5
72x144		189.0
18 Ga. (.050") 2.100		
30x 96		42.0
30x120		52.5
36x 96		50.4
36x120		63.0
48x 96	Cinc.	67.2
48x120		84.0
20 Ga. (.038") 1.575		
30x 96		31.5
30x120		39.4
36x 96		37.8
36x120		47.3
48x 96		50.4
48x120		63.0
22 Ga. (.031") 1.313		
24x 96		21.0
36x 96		31.5
36x120		39.4
48x120		52.5
24 Ga. (.025") 1.050		
30x 96		21.0
36x 96		25.2
36x120		31.5
48x120		42.0
26 Ga. (.019") .788		
30x 96		15.8
36x 96		18.9
36x120		23.6
28 Ga. (.015") .656		
36x120		19.7

TYPE 309

No. 2B Finish—Annealed, Pickled and Cold Rolled

In our Cleveland Plant or as Indicated

Stainless Steel Ga. & Size Inches	Wt. per Sq. Ft.	Est. Wt. per Sheet
10 Ga. (.141") 5.906		
48x120		236.2
11 Ga. (.125") 5.250		
36x120	Buff.	157.5
48x120		210.0
12 Ga. (.109") 4.594		
48x120		183.8
14 Ga. (.078") 3.281		
36x120	Buff.	98.4
14 Ga. (.078") 3.281		
48x120		131.2
16 Ga. (.063") 2.625		
36x120		78.8
48x120		105.0
20 Ga. (.038") 1.575		
36x120		47.3
24 Ga. (.025") 1.050		
36x120		31.5

ALLEGHENY STAINLESS SHEETS

TYPE 316

No. 2B Finish—Annealed, Pickled and Cold Rolled

Conforms to MIL-S-854, Class 9, Condition a

Stainless Steel Ga. & Size Inches	Wt. per Sq. Ft.	Est. Wt. per Sheet
10 Ga. (.141")	5.906	
36x120		177.2
48x120		236.2
11 Ga. (.125")	5.250	
36x120		157.5
48x120		210.0
60x144		315.0
12 Ga. (.109")	4.594	
36x120		137.8
48x120		183.8
14 Ga. (.078")	3.281	
36x120		98.4
48x120		131.2
60x144		196.9
16 Ga. (.063")	2.625	
36x120		78.8
16 Ga. (.063")	2.625	
48x120		105.0
60x144		157.5
18 Ga. (.050")	2.100	
36x120		63.0
48x120		84.0
20 Ga. (.038")	1.575	
36x120		47.3
48x120		63.0
22 Ga. (.031")	1.313	
36x120		39.4
48x120		52.5
24 Ga. (.025")	1.050	
36x120		31.5
26 Ga. (.019")	.788	
36x120		23.6

TYPE 321—TITANIUM STABILIZED

TYPE 347—COLUMBIUM STABILIZED

No. 2D Finish—Annealed, Pickled and Cold Rolled

Conforms to MIL-S-6721, Comp. Cb-Ta or Comp. Ti

And/or

AMS 5510 (Type 321)—**AMS 5512** (Type 347)

See page 144 for additional sizes

Stainless Steel Ga. & Size Inches	Wt. per Sq. Ft.	Est. Wt. per Sheet
10 Ga. (.141")	5.906	
36x120		177.2
48x120		236.2
11 Ga. (.125")	5.250	
36x120		157.5
12 Ga. (.109")	4.594	
36x120		137.8
48x120		183.8
14 Ga. (.078")	3.281	
36x120		98.4
48x120		131.2
16 Ga. (.063")	2.625	
36x120		78.8
16 Ga. (.063")	2.625	
48x120		105.0
18 Ga. (.050")	2.100	
36x120		63.0
48x120		84.0
20 Ga. (.038")	1.575	
36x120		47.2
22 Ga. (.031")	1.31	
36x120		39.4
24 Ga. (.025")	1.050	
36x120		31.5
26 Ga. (.019")	.788	
36x120		23.6

ALLEGHENY STAINLESS SHEETS

TYPE 405

No. 1 Finish—Annealed and Pickled

In our Chicago Plant

Stainless Steel Ga. & Size Inches	Wt. per Sq. Ft.	Est. Wt. per Sheet
11 Ga. (.125")	5.15	
36x 96		123.6
48x120		206.0
12 Ga. (.109")	4.51	
36x 96		108.2
48x120		180.3
14 Ga. (.078")	3.22	
36x 96		77.2
16 Ga. (.063")	2.58	
36x 96		61.8
48x120		103.0
18 Ga. (.050")	2.06	
36x 96		49.4
48x120		82.4
20 Ga. (.038")	1.55	
36x 96		37.1
22 Ga. (.031")	1.29	
36x 96		30.9
24 Ga. (.025")	1.03	
36x 96		24.7

TYPE 430

No. 2B Finish—Annealed, Pickled and Cold Rolled

No. 4 Finish—Polished One Side

Stainless Steel Ga. & Size Inches	Wt. per Sq. Ft.	Est. Wt. per Sheet
11 Ga. (.125")	5.15	
*48x120 Chgo.		206.0
12 Ga. (.109")	4.51	
*36x120		135.3
48x120		180.3
14 Ga. (.078")	3.22	
36x120		96.6
48x120		128.8
16 Ga. (.063")	2.58	
36x120		77.4
48x120		103.2
18 Ga. (.050")	2.06	
36x120		61.8
48x120		82.4
20 Ga. (.038")	1.55	
36x120		46.5
48x120		62.0
22 Ga. (.031")	1.29	
36x120		38.7
24 Ga. (.025")	1.03	
36x120		30.9
26 Ga. (.019")	0.77	
36x120		23.1

*These sizes are available in No. 2B Finish only.

TYPE 302

Cold Rolled Strip

Spring Temper Diaphragm Stock

In our Chicago Plant

A special quality stainless cold rolled strip particularly well suited for pressure diaphragms in control valves and similar applications requiring spring temper. Three-Quarter hard temper 175,000 lbs. minimum Tensile Strength. .0075" thick x 12" wide in coils. Can be slit to your required widths.

ALLEGHENY STAINLESS HAMMERED FORGINGS

Our forge shop is well equipped to supply your requirements for forged bars, rings, discs, hubs, sleeves, etc. The shop maintains a stock of billets so that prompt shipment can be made.

ALLEGHENY STAINLESS WIRE—MILL SHIPMENTS

Straight Chromium and Chromium-Nickel Types

Cold Heading Wire — Spring Wire

Weaving Wire — Welding Wire

Rope Wire

ALLEGHENY STAINLESS SHEETS
AIRCRAFT QUALITY

MIL-S-5059, COMP. G
ANNEALED CONDITION, No. 2 BRIGHT FINISH

Type 302—No. 2B Finish

ANNEALED, PICKLED AND COLD ROLLED

In our St. Louis Plant

TO A.S.A. DECIMAL THICKNESSES

Dec. Thick., Inches	Width & Lgth., Inches	Est. Wt. per Sq. Ft., Lbs.	Est. Wt. per Sht., Lbs.	Dec. Thick., Inches	Width & Lgth., Inches	Est. Wt. per Sq. Ft., Lbs.	Est. Wt. per Sht., Lbs.
.125	36x120	5.25	157.5	.040	36x120	1.68	50.4
.112	36x120	4.70	141.0	.036	36x120	1.51	45.3
.090	36x120	3.78	113.4	.032	36x120	1.34	40.2
.080	36x120	3.36	100.8	.025	36x120	1.05	31.5
.063	36x120	2.63	78.9	.020	36x120	.84	25.2
.050	36x120	2.10	63.0	.016	36x120	.67	20.1
.045	36x120	1.89	56.7	.012	36x120	.50	15.0

AMS-5521

Type 310—No. 2D Finish

ANNEALED, PICKLED AND COLD ROLLED

In our Philadelphia Plant

TO A.S.A. DECIMAL THICKNESSES

Thickness Inches	Size in Inches	Est. Wt. per Sq. Ft.	Est. Wt. per Sheet
.063	36x120	2.63	78.9
.050	36x120	2.10	63.0
.032	36x120	1.34	40.2

Type 321—Titanium Stabilized
Type 347—Columbium Stabilized
No. 2D Finish

Conforms to Specification MIL-S-6721, Composition Ti or Cb-Ta

ANNEALED, PICKLED AND COLD ROLLED

TO A.S.A. DECIMAL THICKNESSES

In our New York or Philadelphia Plants

Dec. Thick., Inches	Size in Inches	Est. Wt. per Sq. Ft., Lbs.	Est. Wt. per Sheet, Lbs.	Dec. Thick., Inches	Size in Inches	Est. Wt. per Sq. Ft., Lbs.	Est. Wt. per Sheet, Lbs.
.125	36x120	5.25	157.2	.036	36x120	1.51	45.3
.112	36x120	4.70	141.0	.032	36x120	1.34	40.2
.080	36x120	3.36	100.8	.025	36x120	1.05	31.5
.063	36x120	2.63	78.9	.020	36x120	.84	25.2
.050	36x120	2.10	63.0	.018	36x120	.76 St.L.	22.8
				.0161	36x120	.68 Chgo.	20.4

Type 321 Conforms to Specification AMS-5510D
Type 347 Conforms to Specification AMS-5512D

Stainless Steel Ga. & Size, Inches	Est. Wt. per Ft., Lbs.	Est. Wt. per Sheet, Lbs.	Stainless Steel Ga. & Size, Inches	Est. Wt. per Ft., Lbs.	Est. Wt. per Sheet, Lbs.
10 Ga. (.141") 48 x 120	5.91	236.2	14 Ga. (.078") 48 x 120	3.28	131.2
11 Ga. (.125") 48 x 120	5.25	210.0	16 Ga. (.063") 48 x 120	2.63	105.0
12 Ga. (.109") 48 x 120	4.59	183.7	18 Ga. (.050") 48 x 120	2.10	84.0

ALLEGHENY STAINLESS PLATES

TYPE 302

Hot Rolled, Annealed and Pickled

Identification Color: Yellow

Thickness, Inches	Size, Inches	Wt. Lbs., Sq. Ft.	Thickness, Inches	Size, Inches	Wt. Lbs., Sq. Ft.
3/16	72x192	Chgo. 7.752	3/8	72x192	Chgo. 15.503
1/4	72x192	Chgo. 10.336	1/2	72x192	Chgo. 20.671

TYPE 304 AND MODIFICATIONS

Hot Rolled, Annealed and Pickled

Identification Color: Green

Thickness & Size, inches	Wt. Lbs. Sq. Ft.	AISI	A.S.T.M. A-240-44 Grade "S" T304 Modified	DuPont 819-R1 Grade 819-A
3/16x72x192	7.752	Bost.	Bost.	
80x240	....	N. Y.	N. Y.	Phil.
1/4x72x192	10.336	Bost.	Bost.	
80x240	....	N. Y.	N. Y.	Phil.
5/16x72x192	12.920	Bost.	Bost.	
80x240	....	N. Y.	N. Y.	Phil.
3/8x72x192	15.503	Bost.	Bost.	
80x240	....	N. Y.	N. Y.	Phil.
1/2x72x192	20.671	Bost.	Bost.	
80x240	....	N. Y.	N. Y.	Phil.
5/8x72x240	25.839	Chgo.	Chgo.	Phil.
3/4x72x240	31.007	Chgo.	Chgo.	Phil.
1 x72x240	41.342	Chgo.	Chgo.	Phil.

TYPE 309

Hot Rolled, Annealed and Pickled

Identification Color: Brown

Thickness, Inches	Size, Inches	Wt. Lbs., Sq. Ft.	Thickness, Inches	Size, Inches	Wt. Lbs., Sq. Ft.
3/16	72x192	Buff. 7.752	3/8	72x192	Buff. 15.503
1/4	72x192	Buff. 10.336	1/2	72x192	Buff. 20.671

TYPE 310

Hot Rolled, Annealed and Pickled

Identification Color: Red

Thickness, Inches	Size, Inches	Wt. Lbs., Sq. Ft.	Thickness, Inches	Size, Inches	Wt. Lbs., Sq. Ft.
3/16	72x192	N.Y. 7.752	3/8	72x192	N.Y. 15.503
1/4	72x192	N.Y. 10.336	1/2	72x192	N.Y. 20.671

ALLEGHENY STAINLESS PLATES

TYPE 316 AND MODIFICATIONS

Hot Rolled, Annealed and Pickled

Identification Color: Type 316—Purple

Thickness & Size, Inches	AISI	A.S.T.M. A-240-44 Grade "M" Modified	DuPont 819-R1 Grade 819-D
3/16"x Wt. Lbs. Sq. Ft. 7.752			
72x192	Bost.	Bost.	
80x240	N. Y.	N. Y.	Phil.
1/4"x Wt. Lbs. Sq. Ft. 10.336			
72x192	Bost.	Bost.	
80x240	N. Y.	N. Y.	Phil.
5/16"x Wt. Lbs. Sq. Ft. 12.920			
72x192	Bost.	Bost.	
80x240	N. Y.	N. Y.	
3/8"x Wt. Lbs. Sq. Ft. 15.503			
72x192	Bost.	Bost.	
80x240	N. Y.	N. Y.	Phil.
1/2"x Wt. Lbs. Sq. Ft. 20.671			
72x192	Bost.	Bost.	
80x240	N. Y.	N. Y.	Phil.
5/8"x Wt. Lbs. Sq. Ft. 25.839			
72x240	Chgo.	Chgo.	Phil.
3/4"x Wt. Lbs. Sq. Ft. 31.007			
72x240	Chgo.	Chgo.	Phil.
1x Wt. Lbs. Sq. Ft. 41.342			
72x240	Chgo.	Chgo.	

TYPE 410

Hot Rolled, Annealed and Pickled

In our Chicago Plant

Thickness, Inches	Size, Inches	Wt. Lbs. Sq. Ft.
3/16	72x192	7.590

CLAD PLATES

Stainless clad steel plates Types 304, 316, 410, and 430 analyses in 10% and 20% cladding, can be furnished promptly from mill.

New Aircraft Book

Ryerson's new Aircraft Book condenses for you the latest information on Air Force, Navy and Government Aircraft steel specifications. It gives you the Chemistry, condition, form and equivalent AISI spec for MIL, AN, QQ-S and AMS aircraft quality steels. Also included is a full listing of the aircraft quality alloy and stainless steels available for immediate shipment from our warehouse stocks . . . steels produced in strict accordance with the Aeronautical specifications. For more information on the aircraft steels in this stock list, ask for our special Aircraft Steels Booklet.

ALLEGHENY STAINLESS BARS

FREE MACHINING ROUNDS—TYPE 303

Selenium or Sulphur Bearing

Identification Color: Black

Conforms to AN-S-771, Grades FM Se or FM S—Condition A
And/or AMS-5640E—Type 1 or Type 2

Random Lengths — 12 to 16 Ft.

Annealed and Cold Drawn

Size in Inches	Est. Wt. per Ft., Lbs.	Size & Finish Extra	Size in Inches	Est. Wt. per Ft., Lbs.	Size & Finish Extra	Size in Inches	Est. Wt. per Ft., Lbs.	Size & Finish Extra
3/32	.023	$33.75	7/32	.128	$14.25	5/16	.262	$11.50
1/8	.042	29.25	1/4	.168	12.50	3/8	.378	9.75
5/32	.065	21.75	9/32	.212	12.50	7/16	.514	9.75
3/16	.094	16.25						

Annealed and Centerless Ground

*1/2	.671	$8.75	1 3/16	6.52	$6.00	2 5/16	17.53	$6.00
*9/16	.850	8.75	*1 5/8	7.05	6.00	*2 5/8	18.40	6.00
*5/8	1.05	7.25	1 11/16	7.60	6.00	*2 3/4	20.20	6.00
*11/16	1.27	7.25	*1 3/4	8.18	6.00	*2 7/8	22.07	7.25
*3/4	1.51	7.25	1 13/16	8.77	6.00	2 15/16	23.04	7.25
*13/16	1.77	7.25	*1 7/8	9.39	6.00	*3	24.03	7.25
*7/8	2.06	7.25	*1 15/16	10.02	6.00	3 1/8	26.08	8.75
*15/16	2.36	7.25	*2	10.68	6.00	3 1/4	28.20	8.75
*1	2.68	6.50	2 1/16	11.36	Chgo. 6.00	3 3/8	30.42	Chgo. 8.75
*1 1/16	3.01	6.50	*2 1/8	12.06	6.00	3 1/2	32.71	8.75
*1 1/8	3.38	6.50	2 3/16	12.78	6.00	3 3/4	37.56	8.75
*1 3/16	3.76	6.50	*2 1/4	13.52	6.00	4	42.73	8.75
*1 1/4	4.17	6.50	2 5/16	14.28	6.00	‡4 1/2	54.07	7.75
*1 5/16	4.60	6.50	*2 3/8	15.07	6.00	‡5	66.76	7.75
*1 3/8	5.02	6.50	*2 7/16	15.86	6.00	‡5 1/2	80.77	10.00
*1 7/16	5.52	6.50	*2 1/2	16.69	6.00	‡6	96.14	10.00
*1 1/2	6.01	6.00						

All sizes in above table are Type 303 Sulphur bearing grade. Sizes marked (*) also available from Cleveland stock in the 303 Selenium bearing grade.

‡These sizes are hot rolled, annealed and rough turned.

ROUNDS—TYPE 304

Identification Color: Green

Annealed and Centerless Ground

Conforms to Navy Specification 46-S-18e, Class 1, Type A.

Random Lengths — 12 to 16 Ft.

Size in Inches	Est. Wt. per Ft., Lbs.	Size & Finish Extra	Size in Inches	Est. Wt. per Ft., Lbs.	Size & Finish Extra	Size in Inches	Est. Wt. per Ft., Lbs.	Size & Finish Extra
†1/8	.042	$29.25	7/8	2.06	$7.25	2	10.68	$6.00
†3/16	.094	16.25	15/16	2.36	7.25	2 1/8	12.06	6.00
†1/4	.168	12.50	1	2.68	6.50	2 1/4	13.52	6.00
†5/16	.262	11.50	1 1/8	3.38	6.50	2 3/8	15.07	6.00
†3/8	.378	9.75	1 1/4	4.17	6.50	2 1/2	16.69	6.00
†7/16	.514	9.75	1 3/8	5.02	6.50	2 5/8	18.40	6.00
1/2	.671	8.75	1 7/16	5.52	6.50	2 3/4	20.20	6.00
9/16	.850	8.75	1 1/2	6.01	6.00	2 7/8	22.07	7.25
5/8	1.05	7.25	1 5/8	7.05	6.00	3	24.03	7.25
11/16	1.27	7.25	1 3/4	8.18	6.00	3 1/8	26.08	8.75
3/4	1.51	7.25	1 7/8	9.39	6.00	3 1/4	28.20	8.75
13/16	1.77	7.25	1 15/16	10.02	6.00	3 1/2	32.71	8.75
						4	42.73	8.75

†Under 1/2", cold drawn finish.

ALLEGHENY STAINLESS BARS

ROUNDS—TYPE 309

Identification Color: Brown

Annealed and Centerless Ground

In our Philadelphia Plant or as Indicated

Random Lengths — 12 to 16 Ft.

Size in Inches	Est. Wt. per Ft., Lbs.	Size & Finish Extra	Size in Inches	Est. Wt. per Ft., Lbs.	Size & Finish Extra	Size in Inches	Est. Wt. per Ft., Lbs.	Size & Finish Extra
†¼	Clev. .168	$12.50	⅞	2.06	$7.25	1¾	8.18	$6.00
†⅜	Clev. .378	9.75	1	2.68	6.50	2	10.68	6.00
½	.671	8.75	1¼	4.17	6.50	2¼	Ch. 13.52	6.00
⅝	1.05	7.25	1⅜	Clev. 5.02	6.50	2½	Ch. 16.69	6.00
¾	1.51	7.25	1½	6.01	6.00	2¾	Ch. 20.20	6.00

†Under ½", cold drawn finish.

ROUNDS—TYPE 316

Identification Color: Purple

Annealed and Centerless Ground

Conforms to DuPont Specification 819R-1, Grade 819D

Random Lengths — 12 to 16 Ft.

Size in Inches	Est. Wt. per Ft., Lbs.	Size & Finish Extra	Size in Inches	Est. Wt. per Ft., Lbs.	Size & Finish Extra	Size in Inches	Est. Wt. per Ft., Lbs.	Size & Finish Extra
†3/16	.094	$16.25	1⅛	3.38	$6.50	2⅜	15.07	$6.00
†¼	.168	12.50	1¼	4.17	6.50	2½	16.69	6.00
†5/16	.262	11.50	1⅜	5.02	6.50	2⅝	18.40	6.00
†⅜	.378	9.75	1 7/16	5.52	6.50	2¾	20.20	6.00
†7/16	.514	9.75	1½	6.01	6.00	2⅞	22.07	7.25
½	.671	8.75	1⅝	7.05	6.00	2 15/16	23.04	7.25
9/16	.850	8.75	1¾	8.18	6.00	3	24.03	7.25
⅝	1.05	7.25	1⅞	9.39	6.00	3⅛	26.08	8.75
¾	1.51	7.25	1 15/16	10.02	6.00	3¼	28.20	8.75
⅞	2.06	7.25	2	10.68	6.00	3⅜	30.42	8.75
15/16	2.36	7.25	2⅛	12.06	6.00	3½	32.71	8.75
1	2.68	6.50	2¼	13.52	6.00			

†Under ½", cold drawn finish.

ROUNDS

TYPE 321—Identification Color: Orange

TYPE 347—Identification Color: Pink

Annealed and Centerless Ground

Conforms to Federal Specification QQ-S-763a, Class 8, Condition A.
And/or
AMS 5645E (Type 321) AMS 5646B (Type 347)

Random Lengths — 12 to 16 Ft.

Size in Inches	Est. Wt. per Ft., Lbs.	Size & Finish Extra	Size in Inches	Est. Wt. per Ft., Lbs.	Size & Finish Extra	Size in Inches	Est. Wt. per Ft., Lbs.	Size & Finish Extra
†3/16	Ch. .094	$16.25	⅞	2.06	$7.25	2	10.68	$6.00
†¼	.168	12.50	15/16	Ch. 2.36	7.25	2¼	13.52	6.00
†5/16	Ch. .262	11.50	1	2.68	6.50	2⅜	15.07	6.00
†⅜	.378	9.75	1 1/16	Ch. 3.01	6.50	2½	16.69	6.00
†7/16	Ch. .514	9.75	1⅛	3.38	6.50	3	24.03	7.25
½	.671	8.75	1¼	4.17	6.50	3⅛	26.08	8.75
⅝	1.05	7.25	1⅜	5.02	6.50	3¼	28.20	8.75
11/16	Ch. 1.27	7.25	1½	6.01	6.00	3½	32.71	8.75
¾	1.51	7.25	1¾	8.18	6.00			

†Under ½", cold drawn finish.

ALLEGHENY STAINLESS BARS

FREE MACHINING ROUNDS—TYPE 416

Identification Color: Blue

Random Lengths — 12 to 16 Ft.

Conforms to Aeronautical Specification AMS 5610D

Annealed and Cold Drawn

Size in Inches	Est. Wt. per Ft., Lbs.	Size & Finish Extra	Size in Inches	Est. Wt. per Ft., Lbs.	Size & Finish Extra	Size in Inches	Est. Wt. per Ft., Lbs.	Size & Finish Extra
1/8	.042	$29.25	1/4	.168	$12.50	3/8	.378	$9.75
3/16	.094	16.25	5/16	.262	11.50	7/16	.514	9.75

Annealed and Centerless Ground

Size in Inches	Est. Wt. per Ft., Lbs.	Size & Finish Extra	Size in Inches	Est. Wt. per Ft., Lbs.	Size & Finish Extra	Size in Inches	Est. Wt. per Ft., Lbs.	Size & Finish Extra
1/2	.671	$8.75	1 1/4	4.17	$6.50	2 1/2	16.69	$6.00
9/16	.850	8.75	1 3/8	5.02	6.50	2 5/8	18.40	6.00
5/8	1.05	7.25	1 7/16	5.52	6.50	2 3/4	20.20	6.00
11/16	1.27	7.25	1 1/2	6.01	6.00	2 7/8	22.07	7.25
3/4	1.51	7.25	1 5/8	7.05	6.00	3	24.03	7.25
13/16	1.77	7.25	1 3/4	8.18	6.00	3 1/8	26.08	8.75
7/8	2.06	7.25	1 7/8	9.39	6.00	3 1/4	28.20	8.75
15/16	2.36	7.25	2	10.68	6.00	3 3/8	Chgo.30.42	8.75
1	2.68	6.50	2 1/8	12.06	6.00	3 1/2	32.71	8.75
1 1/16	3.01	6.50	2 1/4	13.52	6.00	3 3/4	37.56	8.75
1 1/8	3.38	6.50	2 3/8	15.07	6.00	4	42.73	8.75

FREE MACHINING HEXAGONS—TYPE 303

Selenium or Sulphur Bearing

Identification Color: Black

Annealed, Pickled and Cold Drawn

Conforms to Air Force-Navy Aeronautical Specification AN-S-771, Grades FM Se or FM S, Condition A.
And/or AMS-5640E—Type 1 or Type 2

Random Lengths — 12 to 16 Ft.

Size in Inches	Est. Wt. per Ft., Lbs.	Size & Finish Extra	Size in Inches	Est. Wt. per Ft., Lbs.	Size & Finish Extra	Size in Inches	Est. Wt. per Ft., Lbs.	Size & Finish Extra
3/16	.103	$21.75	*3/4	1.66	$12.75	1 1/16	6.08	$12.00
1/4	.184	18.00	13/16	1.94	12.75	*1 1/2	6.62	11.50
*5/16	.287	17.00	*7/8	2.25	12.75	1 5/8	7.77	11.50
11/32	.348	17.00	15/16	2.58	12.75	1 11/16	8.38	11.50
*3/8	.414	15.25	*1	2.94	12.00	1 3/4	9.02	11.50
*7/16	.564	15.25	1 1/16	3.32	12.00	1 13/16	9.67	11.50
*1/2	.736	14.25	1 1/8	3.73	12.00	1 7/8	10.35	11.50
9/16	.932	14.25	*1 1/4	4.60	12.00	2	11.78	11.50
*5/8	1.15	12.75	1 5/16	5.07	12.00	2 1/2	18.40	11.50
11/16	1.39	12.75	*1 3/8	5.57	12.00			

All sizes in above table are Type 303 Sulphur bearing grade. Sizes marked (*) also available from Cleveland, Chicago or Philadelphia stock in the 303 Selenium bearing grade.

ALLEGHENY STAINLESS BARS

HEXAGONS—TYPE 316

Identification Color: Purple

Annealed, Pickled and Cold Drawn

Conforms to DuPont Specification 819R-1, Grade 819D

Random Lengths—12 to 16 Ft.

Size in Inches	Est. Wt. per Ft., Lbs.	Size & Finish Extra	Size in Inches	Est. Wt. per Ft., Lbs.	Size & Finish Extra	Size in Inches	Est. Wt. per Ft., Lbs.	Size & Finish Extra
3/8 Chgo.	.414	$15.25	3/4 Chgo.	1.66	$12.75	1 1/4	4.60	$12.00
7/16	.564	15.25	13/16	1.94	12.75	1 5/16	5.07	12.00
1/2	.736	14.25	7/8	2.25	12.75	1 1/2	6.62	11.50
9/16	.932	14.25	1	2.94	12.00	1 5/8	7.77	11.50
5/8	1.15	12.75	1 1/16	3.32	12.00	1 13/16	9.67	11.50
11/16	1.39	12.75	1 1/8	3.73	12.00			

FREE MACHINING HEXAGONS—TYPE 416

Identification Color: Blue

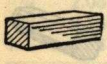
Annealed, Pickled and Cold Drawn

Conforms to Aeronautical Specification AMS-5610D

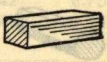
Random Lengths—12 to 16 Ft.

Size in Inches	Est. Wt. per Ft., Lbs.	Size & Finish Extra	Size in Inches	Est. Wt. per Ft., Lbs.	Size & Finish Extra	Size in Inches	Est. Wt. per Ft., Lbs.	Size & Finish Extra
3/4	1.66	$12.75	1 1/8	3.73	$12.00	1 5/8	7.77	$11.50
7/8	2.25	12.75	1 1/4	4.60	12.00	1 3/4	9.02	11.50
1	2.94	12.00	1 3/8	5.57	12.00	2	11.78	11.50
1 1/16	3.32	12.00	1 1/2	6.62	11.50			

FREE MACHINING SQUARES—TYPE 303



Selenium or Sulphur Bearing



Identification Color: Black

Annealed, Pickled and Cold Drawn

Conforms to Air Force-Navy Aeronautical Specification AN-S-771, Grades FM Se or FM S, Condition A. And/or AMS-5640E—Type 1 or Type 2

Random Lengths—12 to 16 Ft.

Size in Inches	Est. Wt. per Ft., Lbs.	Size & Finish Extra	Size in Inches	Est. Wt. per Ft., Lbs.	Size & Finish Extra	Size in Inches	Est. Wt. per Ft., Lbs.	Size & Finish Extra
1/8	.053	$46.75	9/16	1.08	$14.25	1 1/8	4.30	$12.00
*3/16	.120	29.25	*5/8	1.33	12.50	*1 1/4	5.31	12.00
*1/4	.214	20.25	*3/4	1.92	12.50	*1 1/2	7.65	11.50
*5/16	.334	18.00	*7/8	2.62	12.50	*1 3/4	10.41	11.50
*3/8	.481	15.25	*1	3.42	12.00	*2	13.60	11.50
*1/2	.855	14.25						

All sizes in above two tables are Type 303 sulphur bearing grade. Sizes marked (*) also available from Cleveland or Philadelphia stock in the 303 Selenium bearing grade.

FLANGED FITTINGS

Available from factory stock

Type 304 Type 316 Type 347

ALLEGHENY STAINLESS BARS

FLATS—TYPES 302 and 304

Identification Color: Type 302—Yellow; Type 304—Green

Hot Rolled, Annealed and Pickled

Type 304 conforms to Navy Specification 46-S-18e, Class 1, Type A.

Random Lengths—12 to 16 Ft.

Size in Inches	Est. Wt. per Ft., Lbs.	Size & Finish Extra
1/8x ⅜	.159	$27.75
½	.213	15.50
⅝	.266	15.50
¾	.319	12.25
1	.425	11.00
1¼	.531	10.00
1½	.638	10.00
2	.850	10.00
2½	1.06	10.00
3	1.28	10.00
3/16x ½	.319	12.25
⅝	.399	12.25
¾	.478	10.00
1	.638	9.00
1¼	.797	7.75
1½	.957	7.75
2	1.28	7.75
2½	1.59	7.75
3	1.91	7.75
1/4x ½	.425	10.00
⅝	.531	10.00
¾	.636	9.00
1	.850	7.75
1¼	1.06	6.75
1½	1.28	6.25
1¾	1.49	6.25
2	1.70	6.25
2½	2.12	6.25
3	2.55	6.25
4	3.40	6.25
6	5.10	9.00
3/8x ½	.638	7.75
¾	.957	6.75
1	1.28	6.25
1¼	1.59	5.75
1½	1.92	5.75
1¾	2.23	5.75
2	2.55	5.75
3/8x2½	3.19	$5.75
3	3.83	5.75
4	5.10	5.75
5	6.38	Chgo. 6.75
6	7.65	7.75
1/2x1	1.70	5.75
1¼	2.12	5.75
1½	2.55	5.25
1¾	2.98	5.25
2	3.40	5.25
2½	4.25	5.25
3	5.10	5.25
4	6.80	5.75
6	10.20	7.75
5/8x1	2.12	5.25
1½	3.19	4.50
2	4.25	4.50
2½	5.31	Chgo. 4.50
3	6.38	4.50
4	8.50	5.75
6	12.75	Chgo. 7.75
3/4x1	2.55	5.25
1½	3.83	4.50
2	5.10	4.50
2½	6.38	4.50
3	7.65	4.50
4	10.20	5.75
5	12.75	Chgo. 6.75
6	15.30	7.75
1 x1¼	4.25	5.25
1½	5.10	4.50
1¾	5.95	4.50
2	6.80	4.50
2½	8.50	4.50
3	10.20	4.50
4	13.60	5.75
6	20.40	7.75

ALLEGHENY STAINLESS ANGLES

TYPES 302 and 304

Identification Colors: Type 302—Yellow; Type 304—Green

Hot Rolled, Annealed and Pickled

Random Lengths — 14 to 16 Ft.

Size in Inches	Approx. Wt. per Ft., Lbs.	Size & Finish Extra
¾ x ¾ x ⅛	.59	$12.25
1 x1 x⅛	.80	12.25
3/16	1.16	9.00
1¼ x1¼ x⅛	1.01	12.25
3/16	1.48	9.00
1½ x1½ x⅛	1.23	9.00
3/16	1.80	9.00
¼	2.34	6.75
2 x2 x⅛	1.65	9.00
3/16	2.44	9.00
¼	3.19	6.75
2½ x2½ x⅛	2.08	9.00
3/16	3.07	9.00
¼	4.10	6.75
3 x3 x¼	4.90	6.75
⅜	7.20	6.75

TYPE 316

Identification Color: Purple

Hot Rolled, Annealed and Pickled

Random Lengths — 20 to 22 Ft.

In our Philadelphia Plant

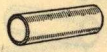
Size in Inches	Approx. Wt. per Ft., Lbs.	Size & Finish Extra
1 x1 x⅛	.80	$12.25
1¼ x1¼ x3/16	1.48	9.00
1½ x1½ x3/16	1.80	9.00
2 x2 x¼	3.19	6.75
3 x3 x¼	4.90	6.75

Helpful Literature

Helpful literature on many steel products and services is yours for the asking. Why not take advantage of the opportunity to secure this valuable data when needed?

If you are puzzled about what steel to use—or how to use it—tell us your problem. We will be glad to send literature and make suggestions.

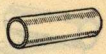
STAINLESS TUBING—TYPE TP304



Cold Drawn, Annealed and Pickled

Conforms to A.S.T.M. A269-47 Type 304

Seamless and Welded

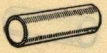


Size O.D.	Average Wall Thickness B.W. Ga. or Inches	Dec. Inches	Size I.D.	Wt. per Ft., Lbs.
1/4	20	.035	.180	.0804
	18	.049	.152	.1052
	16	.065	.120	.1284
5/16	*21	.032	.249	.0960
	20	.035	.242	.1039
	18	.049	.214	.1382
	16	.065	.182	.1722
3/8	20	.035	.305	.1271
	18	.049	.277	.1706
	16	.065	.245	.2152
7/16	20	.035	.367	.1506
	18	.049	.340	.2036
	16	.065	.307	.2589
1/2	20	.035	.430	.1738
	18	.049	.402	.2360
	16	.065	.370	.3020
	*13	.095	.310	.4109
	*11	.120	.260	.4870
9/16	*20	.035	.493 Chgo.	.1974
	*16	.065	.432	.3457
5/8	20	.035	.555	.2205
	18	.049	.527	.3014
	16	.065	.495	.3888
	14	.083	.459	.4805
	*11	.120	.385	.6472
11/16	*16	.065	.557	.4325
3/4	20	.035	.680	.2673
	18	.049	.652	.3668
	16	.065	.620	.4755
	14	.083	.584	.5913
	*13	.095	.560 Chgo.	.6646
	*11	.120	.510	.8074
7/8	*20	.035	.805	.3140
	18	.049	.777	.4323
	16	.065	.745	.5623
	*11	.120	.635	.9676
1	20	.035	.930	.3607
	18	.049	.902	.4977
	16	.065	.870	.6491
	14	.083	.834	.8129
	*13	.095	.810	.9182
	11	.120	.760	1.128
	*3/16	.188	.625	1.630
	*1/4	.250	.500	2.003
1-1/16	*5/32	.156	.750	1.511
1-1/8	*20	.035	1.055	.4070
	*16	.065	.995	.7359
	*13	.095	.935	1.045
	*11	.120	.885	1.288
	*1/4	.250	.625	2.336
1-1/4	*20	.035	1.180	.4542
	*18	.049	1.152	.6285
	16	.065	1.120	.8226
	14	.083	1.084	1.034
	*13	.095	1.060	1.172

(Continued)

*These sizes are available in Seamless only.

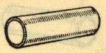
STAINLESS TUBING—TYPE TP304



Cold Drawn, Annealed and Pickled

Conforms to A.S.T.M. A269-47 Type 304

Seamless and Welded



Size O.D.	Average Wall Thickness B.W. Ga. or Inches	Dec. Inches	Size I.D.	Wt. per Ft., Lbs.
(Continued)				
1-1/4	*11	.120	1.010	1.448
	*3/16	.188	.875	2.132
	*1/4	.250	.750	2.670
1-3/8	*16	.065	1.245	.9094
1-1/2	*20	.035	1.430	.5476
	18	.049	1.402	.7593
	16	.065	1.370	.9962
	14	.083	1.334	1.256
	*13	.095	1.310	1.426
	11	.120	1.260	1.769
	*3/16	.188	1.125	2.634
	*1/4	.250	1.000	3.338
1-3/4	*18	.049	1.652	.8902
	*16	.065	1.620	1.170
	*11	.120	1.510	2.089
	*3/16	.188	1.375	3.136
1-7/8	*13	.095	1.685	1.806
2	*18	.049	1.902	1.021
	16	.065	1.870	1.343
	14	.083	1.834	1.699
	*13	.095	1.810	1.933
	*12	.109	1.782	2.201
	11	.120	1.760	2.409
	*3/16	.188	1.625	3.638
2-1/4	16	.065	2.120	1.517
	*13	.095	2.060	Chgo. 2.186
	*11	.120	2.010	2.730
	*3/16	.188	1.875	4.140
	*1/4	.250	1.750	5.340
2-3/8	16	.065	2.245	1.604
2-1/2	18	.049	2.402	1.283
	16	.065	2.370	1.690
	11	.120	2.260	3.050
	*3/16	.188	2.125	4.642
	*1/4	.250	2.000	6.008
2-5/8	*16	.065	2.495	1.777
	*11	.120	2.385	3.210
2-3/4	*16	.065	2.620	1.864
	*11	.120	2.510	3.371
3	16	.065	2.870	2.037
	14	.083	2.834	2.586
	*13	.095	2.810	2.947
	11	.120	2.760	3.691
	*1/4	.250	2.500	7.343
3-1/4	*11	.120	3.010	4.011
3-1/2	16	.065	3.370	2.385
	14	.083	3.334	3.029
	*11	.120	3.260	4.332
3-3/4	*11	.120	3.510	4.652
4	16	.065	3.870	2.649
	14	.083	3.834	3.472
	*13	.095	3.810	3.962
	11	.120	3.760	4.973
	*3/16	.188	3.625	7.654
4-1/2	14	.083	4.334	3.915

*These sizes are available in Seamless only.

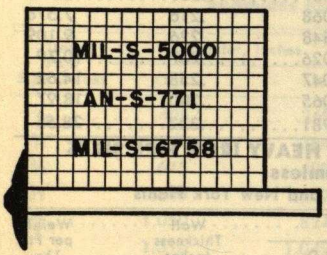
STAINLESS TUBING—TYPE TP316

Cold Rolled, Annealed and Pickled
Conforms to A.S.T.M. A269-47—Type 316

In our New York, Philadelphia and Buffalo Plants

Welded

Size O.D.	Average Wall Thickness B.W. Ga. or Inches	Dec. Inches	Size I.D.	Wt. per Ft., Lbs.
½	18	.049	.402	.2360
	16	.065	.370	.3020
⅝	18	.049	.527	.3014
	16	.065	.495	.3888
¾	18	.049	.652	.3668
	16	.065	.620	.4755
1	18	.049	.902	.4977
	16	.065	.870	.6491
	14	.083	.834	.8129
1¼	16	.065	1.120	.8226
1½	16	.065	1.370	.9962
	14	.083	1.334	1.256
2	16	.065	1.870	1.343
	14	.083	1.834	1.699
	11	.120	1.760	2.409
2½	16	.065	2.370	1.690
3	16	.065	2.870	2.037
	14	Buff. .083	2.834	2.586
4	14	Buff. .083	3.834	3.472



INTERESTED IN AERONAUTICAL SPECIFICATIONS?

With the aircraft industry expanding its capacity 16 times over, steels that meet the latest aeronautical specifications are becoming more and more important. Ryerson stocks now include alloy and stainless steels conforming to the widely used new MIL-S and AMS specifications. What's more, as additional steels are covered by the new specifications, our stocks will be quickly adjusted to conform. So call us for your requirements. You'll find us set up to meet them exactly. Ask for our new book describing the latest aeronautical specifications.

STAINLESS PIPE—TYPE TP304

Cold Drawn, Annealed and Pickled

Conforms to A.S.T.M. A312-48T

SCHEDULE 5—LIGHT WALL IRON PIPE SIZES

Welded

In our Cincinnati Plant

Iron Pipe Size, Inches	Diameter, Inches O.D.	Diameter, Inches I.D.	Wall Thickness Inches	Weight per Ft., Lbs.
¾	1.050	.920	.065	.684
1	1.315	1.185	.065	.868
1½	1.900	1.770	.065	1.274
2	2.375	2.245	.065	1.604
3	3.500	3.334	.083	3.029
4	4.500	4.334	.083	3.915

SCHEDULE 10—LIGHT WALL IRON PIPE SIZES

In our Buffalo Plant

Welded

Iron Pipe Size, Inches	Diameter, Inches O.D.	Diameter, Inches I.D.	Wall Thickness Inches	Weight per Ft., Lbs.
¾	1.050	.884	.083	.8572
1	1.315	1.097	.109	1.404
1½	1.900	1.682	.109	2.085
2	2.375	2.157	.109	2.638
3	3.500	3.260	.120	4.332
4	4.500	4.260	.120	5.613

SCHEDULE 40—STANDARD IRON PIPE SIZES

Seamless and Welded

Iron Pipe Size, Inches	Diameter, Inches O.D.	Diameter, Inches I.D.	Wall Thickness Inches	Weight per Ft., Lbs.
⅛	.405	.269	.068	.2447
¼	.540	.364	.088	.4248
⅜	.675	.493	.091	.5676
½	.840	.622	.109	.8510
¾	1.050	.824	.113	1.131
1	1.315	1.049	.133	1.679
1¼	1.660	1.380	.140	2.273
1½	1.900	1.610	.145	2.718
2	2.375	2.067	.154	3.653
	Seamless			
2½	2.875	2.469	.203	5.793
3	3.500	3.068	.216	7.576
3½	4.000	3.548	.226	9.109
4	4.500	4.026	.237	10.79
5	5.563	5.047	.258	14.62
6	6.625	6.065	.280	18.97
8	8.625	7.981	.322	28.55

SCHEDULE 80—EXTRA HEAVY IRON PIPE SIZES

Seamless

In our Philadelphia and New York Plants

Iron Pipe Size, Inches	Diameter, Inches O.D.	Diameter, Inches I.D.	Wall Thickness Inches	Weight per Ft., Lbs.
⅛	.405	.215	.095	.3145
¼	.540	.302	.119	.5351
⅜	.675	.423	.126	.7388
½	.840	.546	.147	1.088
¾	1.050	.742	.154	1.474
1	1.315	.957	.179	2.172
1¼	1.660	1.278	.191	2.997
1½	1.900	1.500	.200	3.631
2	2.375	1.939	.218	5.022
2½	2.875	2.323	.276	7.661
3	3.500	2.900	.300	10.25
4	4.500	3.826	.337	14.98

STAINLESS PIPE—TYPE TP316

Cold Drawn, Annealed and Pickled

Conforms to A.S.T.M. A312-48T

SCHEDULE 5—LIGHT WALL IRON PIPE SIZES

Welded

In our Cincinnati Plant

Iron Pipe Size, Inches	Diameter, Inches O.D.	Diameter, Inches I.D.	Wall Thickness Inches	Weight per Ft., Lbs.
¾	1.050	.920	.065	.684
1	1.315	1.185	.065	.868
1½	1.900	1.770	.065	1.274
2	2.375	2.245	.065	1.604
3	3.500	3.334	.083	3.029
4	4.500	4.334	.083	3.915

SCHEDULE 10—LIGHT WALL IRON PIPE SIZES

In our Buffalo Plant

Welded

Iron Pipe Size, Inches	Diameter, Inches O.D.	Diameter, Inches I.D.	Wall Thickness Inches	Weight per Ft., Lbs.
¾	1.050	.884	.083	.8572
1	1.315	1.097	.109	1.404
1½	1.900	1.682	.109	2.085
2	2.375	2.157	.109	2.638
3	3.500	3.260	.120	4.332
4	4.500	4.260	.120	5.613

SCHEDULE 40—STANDARD IRON PIPE SIZES

Seamless and Welded

Iron Pipe Size, Inches	Diameter, Inches O.D.	Diameter, Inches I.D.	Wall Thickness Inches	Weight per Ft., Lbs.
⅛	.405	.269	.068	.2447
¼	.540	.364	.088	.4248
⅜	.675	.493	.091	.5676
½	.840	.622	.109	.8510
¾	1.050	.824	.113	1.131
1	1.315	1.049	.133	1.679
1¼	1.660	1.380	.140	2.273
1½	1.900	1.610	.145	2.718
2	2.375	2.067	.154	3.653

Seamless

2½	2.875	2.469	.203	5.793
3	3.500	3.068	.216	7.576
4	4.500	4.026	.237	10.79
6	6.625	6.065	.280	18.97

STAINLESS PIPE—TYPE TP347 and/or 304ELC

Cold Drawn, Annealed and Pickled
Conforms to A.S.T.M. A312-48T

SCHEDULE 5—LIGHT WALL IRON PIPE SIZES

Welded
In our Cincinnati Plant

Iron Pipe Size, Inches	Diameter, Inches O.D.	Diameter, Inches I.D.	Wall Thickness Inches	Weight per Ft., Lbs.,
¾	1.050	.920	.065	.684
1	1.315	1.185	.065	.868
1½	1.900	1.770	.065	1.274
2	2.375	2.245	.065	1.604
3	3.500	3.334	.083	3.029
4	4.500	4.334	.083	3.915

SCHEDULE 10—LIGHT WALL IRON PIPE SIZES

In our Buffalo Plant
Welded

Iron Pipe Size, Inches	Diameter, Inches O.D.	Diameter, Inches I.D.	Wall Thickness Inches	Weight per Ft., Lbs.,
¾	1.050	.884	.083	.8572
1	1.315	1.097	.109	1.404
1½	1.900	1.682	.109	2.085
2	2.375	2.157	.109	2.638
3	3.500	3.260	.120	4.332
4	4.500	4.260	.120	5.613

SCHEDULE 40—STANDARD IRON PIPE SIZES

Seamless and Welded
In our Philadelphia and Buffalo Plants

Iron Pipe Size, Inches	Diameter, Inches O.D.	Diameter, Inches I.D.	Wall Thickness Inches	Weight per Ft., Lbs.,
⅛	.405	.269	.068	.2447
¼	.540	.364	.088	.4248
⅜	.675	.493	.091	.5676
½	.840	.622	.109	.8510
¾	1.050	.824	.113	1.131
1	1.315	1.049	.133	1.679
1¼	1.660	1.380	.140	2.273
1½	1.900	1.610	.145	2.718
2	2.375	2.067	.154	3.653
	Seamless			
2½	2.875	2.469	.203	5.793
3	3.500	3.068	.216	7.576
4	4.500	4.026	.237	10.79
6	6.625	6.065	.280	18.97

SCHEDULE 80—EXTRA HEAVY IRON PIPE SIZES

Seamless
In our Philadelphia Plant

Iron Pipe Size, Inches	Diameter, Inches O.D.	Diameter, Inches I.D.	Wall Thickness Inches	Weight per Ft., Lbs.,
1½	1.900	1.500	.200	3.631
2	2.375	1.939	.218	5.022
2½	2.875	2.323	.276	7.661
3	3.500	2.900	.300	10.25
4	4.500	3.826	.337	14.98

STAINLESS SCREWED TYPE FITTINGS

Type 304 and Type 316
Iron Pipe Sizes

Item	1/8"	1/4"	3/8"	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"
Couplings	√	√	√	√	√	√	√	√	√	√	√
90° Elbows	√	√	√	√	√	√	√	√	√	√	√
Tees		√	√	√	√	√	√	√	√	√	√
Unions	√	√	√	√	√	√	√	√	√	√	√
Plugs		√	√	√	√	√	√	√	√	√	√
Caps		√	√	√	√	√	√	√	√	√	√
45° Elbows	√	√	√	√	√	√	√	√	√	√	√
Crosses	√	√	√	√	√	√	√	√	√	√	√
Bushings	√	√	√	√	√	√	√	√	√	√	√
Companion Flanges				√	√	√	√	√	√	√	√
Close Nipples	√	√	√	√	√	√	√	√	√	√	√
Short Nipples	√	√	√	√	√	√	√	√	√	√	√

STAINLESS WELDING PIPE FITTINGS

Type 304—Type 316—Type 347
Iron Pipe Sizes

Item	1 1/2"	2"	2 1/2"	3"	4"
90° Elbows	√	√	√	√	√
45° Elbows	√	√	√	√	√
Lap Joint Stub Ends	√	√	√	√	√
Caps	√	√	√	√	√

COOPER STAINLESS VALVES

In our Buffalo Plant

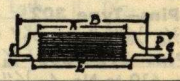
Size I.P.S.	GATE VALVES: O.S. & Y. Bolted Bonnet Screw Ends Figure 101		GATE VALVES: Union Bonnet Screw Ends Figure 115		GLOBE VALVES: Union Bonnet Screw Ends Figure 35	
	Type 304	Type 316	Type 304	Type 316	Type 304	Type 316
1/2	√	√	√	√	√	√
3/4	√	√	√	√	√	√
1	√	√	√	√	√	√
1 1/2	√*	√*				
2	√	√				

*Also available in Figure 117 Bolted Bonnet Gate Valve.

Other sizes and analyses and other types of valves available for prompt shipment from the factory.

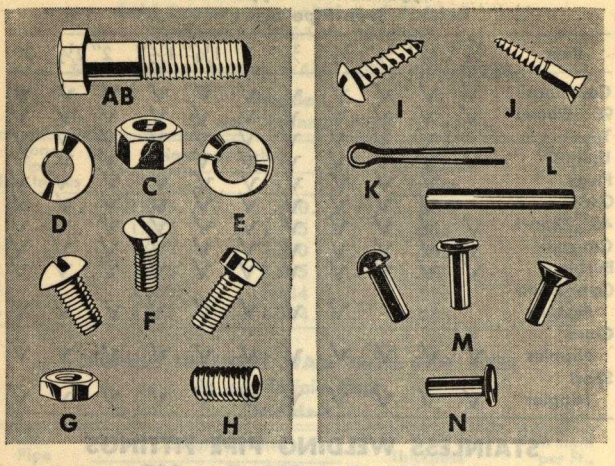
STAINLESS WELDING SPUDS

(Tank Flanges)
Type 304



No.	A I.P.S.	B Inches	C Inches	D Inches	E Inches	F Inches
3002A	1/4	1 1/2	13/32	3/64	1 5/32	3/32
3004A	1/2	1 7/8	9/16	3/64	1 1/4	3/32
3006A	3/4	2	5/8	1/16	1 9/32	3/32
3008A	1	2 1/4	3/4	1/16	1 3/4	3/16
3010A	1 1/4	2 11/16	3/4	1/16	1 7/8	3/16
3012A	1 1/2	3 3/64	3/4	1/16	2 11/32	3/16
3016A	2	3 1/2	3/4	1/16	2 23/32	3/16

STAINLESS FASTENINGS



Stainless Fastenings described below are stocked in a full range of sizes ready for prompt shipment. Many additional stainless fastenings are regularly available from factory stock.

A—Hexagon Head Cap Screws—Type 304
Cold Headed, Annealed & Pickled—Class 2 Fit
1/4" to 3/8" diam.—20 to 16 threads/in.—1/2" to 3" lgth.

B—Hexagon Head Bolts and Cap Screws—Types 304 & 316
Hot Forged, Annealed & Pickled—Class 2 Fit
5/16" to 3/4" diam.—18 to 10 threads/in.—3/4" to 4" lgth.

C—Hexagon Nuts—Type 303 & Type 316
American Standard Regular—Class 2 Fit
5/16" to 3/8" diam.—18 to 10 threads/in.

D—Flat Punched Washers—Type 302
No. 6, 8, 10 and 1/4, 5/16, 3/8, 1/2, 5/8 and 3/4" diam.

E—"Kantlink" Lock Washers—Type 302
No. 6, 8, 10 and 1/4, 5/16, 3/8, 1/2, 5/8 and 3/4" diam.

F—Machine Screws—Type 304—Round, Flat & Fillister Head
Cold Headed, Rolled Thread, Flat Point—Class 2 Fit
No. 6, 8, 10, 1/4, 5/16, 3/8" diam.—32 to 16 threads/in.—1/4" to 1 1/2" lgth.

G—Hexagon Machine Screw Nuts—Type 303
Milled from Bar—Class 2 Fit
No. 6, 8, 10 and 1/4" diam.—32, 24, 20 threads/in.

H—Socket Head Set Screws—Type 303—Cup Point—Class 2 Fit
1/4, 5/16, 3/8" diam.—20, 18, 16 threads/in.—1/4, 5/16, 3/8" lgth.

I—Sheet Metal Screws—Type 304—Round Head—"A" Point
No. 6, 8, 10 diam.—3/8, 1/2, 5/8" lgth.

J—Wood Screws—Type 304—Flat Countersunk Head
No. 6, 8, 10, 12, 14, 16 diam.—3/4, 1, 1 1/2, 2" lgth.

K—Cotter Pins—Type 302
3/32, 1/16, 3/16, 1/8" diam.—1/2" to 1 1/2" lgth.

L—Taper Pins—Type 303—1/4" Taper per Foot
Sizes No. 610 to No. 4—1/2" to 2" lgth.

M—Rivets—Type 304—Round, Flat & Countersunk Head
Cold Headed, Annealed, Bright Finish
1/8, 3/16, 1/4" diam.—1/4" to 1 1/4" lgth.

N—Tinners Rivets—Type 304
Cold Headed, Annealed, Bright Finish
Sizes No. 1, 1 1/2, 2, 3, 4, 5 and 6

RYERSON STAINLESS ELECTRODES

DC Titania Coated

Realizing the need for uniform and high quality weld deposits in the fabrication of stainless steel, Ryerson Stainless Electrodes are manufactured under the closest specification control. Core wire and coating materials are selected with utmost care and then processed under rigid inspection, resulting in a product of uniform and dependable quality.

Under proper welding conditions, Ryerson Stainless Electrodes will insure weld deposits at least equal or superior to the base metal in corrosion resisting and physical properties. Partial losses of important elements which occur during the process of welding are compensated by maintaining these elements sufficiently high in the electrode. Special flux materials help keep these losses to a minimum. It is important that the welder hold a close arc and use the minimum amount of heat consistent with good fusion.

They excel from the standpoint of operating characteristics, the arc is stable, the spatter low. Weld beads are smooth and uniform in appearance. Supplied in 5-lb. packages wrapped in specially treated paper, sealing against moisture and deterioration, ten packages to a 50-lb. box.

RYERSON STAINLESS—Type No. 308

Dia.	Lgth.	Dia.	Lgth.	Dia.	Lgth.
.075	9	1/8	11	3/16	12
3/32	9	5/32	12	1/4	Buff. 12

RYERSON STAINLESS—Type No. 309

Dia.	Lgth.	Dia.	Lgth.	Dia.	Lgth.	Dia.	Lgth.
3/32	9	1/8	Chgo. 11	5/32	Clev. 12	3/16	Clev. 12

RYERSON STAINLESS—Type No. 310

Dia.	Lgth.	Dia.	Lgth.	Dia.	Lgth.
.075	9	1/8	11	3/16	12
3/32	9	5/32	12	1/4	Buff. 12

RYERSON STAINLESS—Type No. 316

Dia.	Lgth.	Dia.	Lgth.	Dia.	Lgth.
.075	9	1/8	11	3/16	Buff. 12
3/32	9	5/32	12	1/4	Buff. 12

RYERSON STAINLESS—Type No. 317

Dia.	Lgth.	Dia.	Lgth.	Dia.	Lgth.
.075	9	1/8	11	3/16	12
3/32	9	5/32	12		

RYERSON STAINLESS—Type No. 330

Dia.	Lgth.	Dia.	Lgth.	Dia.	Lgth.	Dia.	Lgth.
3/32	9	1/8	11	5/32	12	3/16	12

RYERSON STAINLESS—Type No. 347

Dia.	Lgth.	Dia.	Lgth.	Dia.	Lgth.
.075	9	1/8	11	3/16	Buff. 12
3/32	9	5/32	12	1/4	St. L. 12

RYERSON BARE ACETYLENE WELDING RODS

RYERSON STAINLESS—Type No. 347

In our Chicago Plant

Dia.	Lgth.	Dia.	Lgth.	Dia.	Lgth.
1/16	9	1/8	11	3/16	12
3/32	9	5/32	12		

PRESSURE TUBES

SEAMLESS STEEL BOILER TUBES

ELECTRIC RESISTANCE WELDED BOILER TUBES

We maintain complete stocks of both Seamless Steel and Electric Resistance Welded Boiler Tubes. All Boiler Tubes carried by Ryerson are manufactured and tested in accordance with the latest ASTM and ASME Specifications (A-83 for grade A Seamless, A-178 for grade A Electric Welded) and as such conform to the latest rules, regulations and specifications of the following agencies: Board of Supervising Inspectors, Bureau of Navigation and Steamboat Inspection, U. S. Department of Commerce; American Bureau of Shipping; American Association of Railroads; The Federal Specification Board—WWT-731-A and U. S. Navy—44 T-11.

Outside Diameter in Inches	Minimum Wall Thickness Decimal	Minimum Wall Thickness B.W.Ga.	Approx. Weight per Ft., Lbs.	Stock Lengths, Feet — Electric Resistance Welded & Seamless Steel
1	.095	13	1.037	10,12,14,16,18,20
1 1-4	.095	13	1.328	10,12,14,16,18,20
1 1-2	.095	13	1.619	10,12,14,16,18,20
1 3-4	.095	13	1.910	10,12,14,15,16,18,20
2	.095	13	2.201	10,11,12,13,14,15,16,18,20,21
2	.120	11	2.726	10,11,12,14,16,18,20,22
2 1-4	.095	13	2.492	10,12,14,16,18,20
2 1-2	.109	12	3.171	10,12,13,14,15,16,17,18,20
2 3-4*	.109	12	3.504	10,12,14,16,18
3	.109	12	3.838	10,11,12,13,14,15,16,17,18,20,22
3 1-4*	.120	11	4.555	10,12,14,16,18
3 1-2	.120	11	4.921	10,12,13,14,16,18,20
4	.134	10	6.286	10,11,12,14,16,18,20,21,22,24
4	.148	9	6.915	16,18,20,22
4 1-2*	.134	10	7.103	16,18,20,22

*These sizes carried in Seamless only. All other sizes carried in both Welded and Seamless.

Boiler Tubes Copper Ferrules—See complete listing on page 181.

Bent Boiler Tubes can be furnished for all standard types of boilers. Please let us have name and type of boiler as well as tube number.

Boiler Tube Expanders—We stock a wide range of standard Boiler Tube Roller Expanders and can furnish practically all types.

Heads, Boiler Fittings, Flanges—See complete listings at the end of this section.

COLD DRAWN SEAMLESS HYDRAULIC TUBING

This tubing is pressure tested to 1000 lbs. per square inch and meets the requirements of the Joint Industry Conference on Hydraulic Standards for Industrial Equipment. The tubing is soft annealed and is specially prepared to insure the clean I.D. necessary for use in hydraulic work. Both ends are corked to protect inside of tubing from foreign matter.

12 Ft. Stock Lengths

In our Chicago, Cincinnati, Cleveland and New York Plants

Size O. D.	Average Wall Thickness B. W. Ga.	Dec. Inches	I. D.	Wt. Per Ft., Lbs.
1-4	20	.035	.180	.0804
5-16	20	.035	.242	.1039
3-8	20	.035	.305	.1271
	18	.049	.277	.1706
1-2	20	.035	.430	.1738
	18	.049	.402	.2360
5-8	18	.049	.527	.3014
	16	.065	.495	.3888
3-4	18	.049	.652	.3668
	16	.065	.620	.4755
7-8	18	.049	.777	.4323
	16	.065	.745	1.5623
1	18	.049	.902	.4977
	16	.065	.870	.6491

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COLD DRAWN SEAMLESS MECHANICAL TUBING

All Ryerson tubing meets standards of straightness, concentricity and accuracy of size that are well within Manufacturer's Standard Tolerances. Ryerson low carbon tubing is readily formed and easily machined or welded. The high carbon analysis is suitable for heat treatment and for use in applications subject to abrasive wear. Because our stocks are ordered to both O.D. and Wall Thicknesses, Standard Tolerances for these two dimensions will apply.

The use of mechanical tubing effects substantial savings in many production and maintenance applications. When a machined part is generally cylindrical in shape with a hole in the center, tubing will usually save expensive drilling time, lower handling costs, reduce material waste and increase the speed of production. The high quality of Ryerson cold drawn seamless steel tubing assures you the full benefit of these savings.

We urge you to consult our tubing specialists on every requirement for seamless tubing from stock. There is no obligation. Your inquiries and orders will receive prompt, personal attention.

ROUND TUBING

COLD DRAWN SEAMLESS MECHANICAL

Low Carbon—Random Lengths 5 to 24 Ft.

Size O.D.	B.W. Ga.	Average Wall Thickness Dec. Inches	Nominal I.D.	Wt. Per Ft. Lbs.
1/8				
	24	.022	.081	.0242
5/32				
	22	.028	.100	.0383
3/16				
	24	.022	.144	.0390
	22	.028	.131	.0478
	21	.032	.123	.0533
	20	.035	.117	.0572
	18	.049	.089	.0727
	17	.058	.072	.0805
	16	.065	.058	.0854
1/4				
	24	.022	.206	.0536
	22	.028	.194	.0664
	21	.032	.187	.0745
	*20	.035	.180	.0804
	19	.042	.166	.0933
	18	.049	.152	.1052
	17	.058	.132	.1189
	16	.065	.120	.1284
	14	.083	.084	.1480
	13	.095	.060	.1573
	12	.109	.032	.1641
5/16				
	24	.022	.268	.0684
	22	.028	.256	.0852
	21	.032	.249	.0960

(Continued)

*Also carried in Cold Drawn Seamless Hydraulic Grade.

Stainless Tubing 153-155
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ROUND TUBING

COLD DRAWN SEAMLESS MECHANICAL
Low Carbon—Random Lengths 5 to 24 Ft.

Size O. D.	Average Wall Thickness B. W. Ga.	Average Wall Thickness Dec. Inches	Nominal I.D.	Wt. Per Ft. Lbs.
(Continued)				
5/16				
	*20	.035	.242	.1039
	19	.042	.229	.1216
	18	.049	.214	.1382
	17	.058	.196	.1580
	16	.065	.182	.1722
	14	.083	.147	.2039
	13	.095	.122	.2212
	12	.109	.094	.2375
	11	.120	.072	.2473
3/8				
	24	.022	.331	.0829
	23	.025	.325	.0935
	22	.028	.319	.1038
	21	.032	.311	.1172
	*20	.035	.305	.1271
	19	.042	.293	.1494
	*18	.049	.277	.1706
	17	.058	.259	.1964
	16	.065	.245	.2152
	14	.083	.209	.2588
	13	.095	.185	.2841
	12	.109	.157	.3097
	11	.120	.135	.3268
	10	.134	.107	.3449
13/32				
	16	.065	.276	.2367
	13	.095	.216	.3155
7/16				
	24	.022	.393	.0977
	23	.025	.388	.1103
	22	.028	.381	.1226
	21	.032	.374	.1388
	20	.035	.367	.1506
	19	.042	.354	.1776
	18	.049	.340	.2036
	17	.058	.322	.2354
	16	.065	.307	.2589
	14	.083	.272	.3147
	13	.095	.247	.3480
	11	.120	.197	.4075
	10	.134	.169	.4351
1/2				
	24	.022	.456	.1123
	22	.028	.444	.1411
	21	.032	.436	.1599
	*20	.035	.430	.1738
	19	.042	.416	.2054
	*18	.049	.402	.2360
	17	.058	.384	.2738
	16	.065	.370	.3020
	15	.072	.356	.3291
	14	.083	.334	.3696
	13	.095	.310	.4109
	12	.109	.282	.4552
	11	.120	.260	.4870
	10	.134	.232	.5238
	5/32	.156	.187	.5731
	3/16	.187	.125	.6264
17/32				
	16	.065	.401	.3237
	14	.083	.365	.3971
	11	.120	.291	.5267
9/16				
	24	.022	.519	.1271
	22	.028	.506	.1600
	21	.032	.499	.1815
	20	.035	.492	.1974
	18	.049	.464	.2690
	16	.065	.432	.3457
	14	.083	.396	.4255
	13	.095	.372	.4748
	12	.109	.344	.5285
	11	.120	.322	.5677
	10	.134	.295	.6140
	5/32	.156	.250	.6781
	3/16	.188	.188	.7529
5/8				
	24	.022	.581	.1417
	23	.025	.575	.1602
	22	.028	.569	.1785
	21	.032	.561	.2027
	20	.035	.555	.2205
	19	.042	.541	.2615
	*18	.049	.527	.3014
	17	.058	.509	.3512
	*16	.065	.495	.3888
	14	.083	.459	.4805
	13	.095	.435	.5377
	12	.109	.407	.6007
	11	.120	.385	.6472
	10	.134	.357	.7027
	5/32	.156	.312	.7814
	3/16	.188	.250	.8774
	7/32	.219	.187	.9496
	1/4	.250	.125	1.001
21/32				
	13	.095	.466	.5693
	11	.120	.416	.6869
11/16				
	22	.028	.631	.1974
	20	.035	.617	.2441
	18	.049	.589	.3344
	17	.058	.571	.3902
	16	.065	.557	.4325
	14	.083	.521	.5363
	13	.095	.497	.6017
	12	.109	.469	.6740
	11	.120	.447	.7279
	10	.134	.419	.7928
	5/32	.156	.375	.8864
	3/16	.188	.312	1.004
	7/32	.219	.250	1.097
3/4				
	24	.022	.706	.1711
	22	.028	.694	.2159
	21	.032	.686	.2454
	20	.035	.680	.2673
(Continued)				

*Also carried in Cold Drawn Seamless Hydraulic grade.

Prompt shipment of carbon and alloy tubing from mill.

ROUND TUBING

COLD DRAWN SEAMLESS MECHANICAL

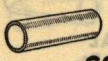
Low Carbon—Random Lengths 5 to 24 Ft.

Size O. D.	Average Wall Thickness B. W. Ga.	Dec. Inches	Nominal I.D.	Wt. Per Ft. Lbs.
(Continued)				
3/4				
	19	.042	.666	.3176
	*18	.049	.652	.3668
	17	.058	.634	.4267
	*16	.065	.620	.4755
	14	.083	.584	.5913
	13	.095	.560	.6646
	12	.109	.532	.7462
	11	.120	.510	.8074
	10	.134	.482	.8816
	5/32	.156	.437	.9897
	3/16	.188	.375	1.128
	7/32	.219	.313	1.242
	1/4	.250	.250	1.335
13/16				
	22	.028	.757	.2347
	20	.035	.742	.2908
	18	.049	.714	.3998
	17	.058	.697	.4677
	16	.065	.682	.5193
	14	.083	.647	.6471
	13	.095	.622	.7285
	12	.109	.594	.8195
	11	.120	.572	.8881
	10	.134	.544	.9717
	5/32	.156	.500	1.095
	3/16	.188	.437	1.255
	7/32	.219	.375	1.389
	1/4	.250	.312	1.503
27/32				
	12	.109	.625	.8554
	5/32	.156	.531	1.146
7/8				
	24	.022	.831	.2004
	22	.028	.819	.2533
	20	.035	.805	.3140
	19	.042	.791	.3737
	18	.049	.777	.4323
	17	.058	.759	.5061
	16	.065	.745	.5623
	14	.083	.709	.7021
	13	.095	.685	.7914
	12	.109	.657	.8917
	11	.120	.635	.9676
	10	.134	.607	1.060
	5/32	.156	.562	1.198
	3/16	.188	.500	1.379
	7/32	.219	.437	1.534
	1/4	.250	.375	1.669
	9/32	.281	.313	1.783
	5/16	.313	.250	1.879
15/16				
	22	.028	.881	.2721
	20	.035	.867	.3375
	18	.049	.839	.4652
	17	.058	.822	.5451
	16	.065	.807	.6060
	14	.083	.772	.7579
	13	.095	.748	.8553

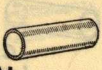
Size O. D.	Average Wall Thickness B. W. Ga.	Dec. Inches	Nominal I.D.	Wt. Per Ft. Lbs.
15/16				
	12	.109	.719	.9651
	11	.120	.697	1.048
	10	.134	.669	1.151
	5/32	.156	.625	1.303
	3/16	.188	.562	1.506
	7/32	.219	.500	1.682
	1/4	.250	.438	1.837
	5/16	.313	.313	2.089
1				
	24	.022	.956	.2298
	22	.028	.944	.2907
	21	.032	.936	.3308
	20	.035	.930	.3607
	18	.049	.902	.4977
	17	.058	.884	.5835
	*16	.065	.870	.6491
	14	.083	.834	.8129
	13	.095	.810	.9182
	12	.109	.782	1.037
	11	.120	.760	1.128
	10	.134	.732	1.239
	5/32	.156	.687	1.406
	3/16	.188	.625	1.630
	7/32	.219	.562	1.827
	1/4	.250	.500	2.003
	9/32	.281	.438	2.158
	5/16	.313	.375	2.297
	11/32	.344	.312	2.410
	3/8	.375	.250	2.503
1-1/16				
	22	.028	1.006	.3095
	20	.035	.992	.3843
	18	.049	.964	.5306
	17	.058	.946	.6225
	16	.065	.932	.6928
	14	.083	.897	.8687
	13	.095	.872	.9821
	12	.109	.844	1.111
	11	.120	.822	1.209
	10	.134	.795	1.330
	5/32	.156	.750	1.511
	3/16	.188	.687	1.757
	7/32	.219	.625	1.974
	1/4	.250	.562	2.171
	9/32	.281	.500	2.347
	5/16	.313	.437	2.507
	3/8	.375	.312	2.755
1-1/8				
	22	.028	1.069	.3280
	21	.032	1.061	.3735
	20	.035	1.055	.4074
	18	.049	1.027	.5631
	17	.058	1.009	.6609
	16	.065	.995	.7359
	14	.083	.959	.9237
	13	.095	.935	1.045
	12	.109	.907	1.183
	11	.120	.885	1.288
	10	.134	.857	1.418

(Continued)

*Also carried in Cold Drawn Seamless Hydraulic grade.



ROUND TUBING



COLD DRAWN SEAMLESS MECHANICAL

Low Carbon—Random Lengths 5 to 24 Ft.

Size O. D.	Average Wall Thickness B. W. Ga.	Average Wall Thickness Dec. Inches	Nominal I.D.	Wt. Per Ft. Lbs.
(Continued)				
1-1/8				
	5/32	.156	.812	1.614
	3/16	.188	.750	1.881
	7/32	.219	.688	2.119
	1/4	.250	.625	2.336
	9/32	.281	.563	2.533
	5/16	.313	.500	2.714
	3/8	.375	.375	3.004
1-3/16				
	22	.028	1.131	.3469
	20	.035	1.117	.4310
	18	.049	1.090	.5961
	16	.065	1.057	.7796
	14	.083	1.022	.9795
	13	.095	.997	1.109
	11	.120	.947	1.369
	5/32	.156	.875	1.719
	3/16	.188	.812	2.008
	7/32	.219	.750	2.266
	1/4	.250	.687	2.504
	9/32	.281	.626	2.722
	5/16	.313	.562	2.925
1-1/4				
	22	.028	1.194	.3654
	21	.032	1.186	.4163
	20	.035	1.180	.4542
	18	.049	1.152	.6285
	17	.058	1.134	.7384
	16	.065	1.120	.8226
	14	.083	1.084	1.034
	13	.095	1.060	1.172
	12	.109	1.032	1.328
	11	.120	1.010	1.448
	10	.134	.982	1.597
	5/32	.156	.937	1.823
	3/16	.188	.875	2.132
	7/32	.219	.812	2.411
	1/4	.250	.750	2.670
	9/32	.281	.687	2.908
	5/16	.313	.625	3.132
	3/8	.375	.500	3.504
	7/16	.437	.375	3.798
1-5/16				
	20	.035	1.242	.4777
	18	.049	1.214	.6615
	16	.065	1.182	.8664
	14	.083	1.147	1.090
	13	.095	1.122	1.236
	12	.109	1.094	1.402
	11	.120	1.072	1.529
	10	.134	1.044	1.687
	5/32	.156	1.000	1.928
	3/16	.188	.937	2.259
	7/32	.219	.875	2.559
	1/4	.250	.812	2.838
	9/32	.281	.750	3.097
	5/16	.313	.688	3.343
	3/8	.375	.562	3.757

Size O. D.	Average Wall Thickness B. W. Ga.	Average Wall Thickness Dec. Inches	Nominal I.D.	Wt. Per Ft. Lbs.
1-3/8				
	20	.035	1.305	.5009
	18	.049	1.277	.6939
	17	.058	1.259	.8158
	16	.065	1.245	.9094
	14	.083	1.209	1.145
	13	.095	1.185	1.299
	12	.109	1.157	1.474
	11	.120	1.135	1.608
	10	.134	1.107	1.776
	5/32	.156	1.062	2.031
	3/16	.188	1.000	2.383
	7/32	.219	.938	2.704
	1/4	.250	.875	3.004
	9/32	.281	.813	3.283
	5/16	.313	.750	3.550
	3/8	.375	.625	4.005
	7/16	.438	.500	4.383
	1/2	.500	.375	4.673
1-7/16				
	20	.035	1.367	.5244
	18	.049	1.339	.7269
	16	.065	1.307	.9531
	14	.083	1.271	1.201
	13	.095	1.247	1.363
	11	.120	1.198	1.689
	10	.134	1.170	1.866
	5/32	.156	1.125	2.136
	3/16	.188	1.062	2.510
	7/32	.219	1.000	2.851
	1/4	.250	.938	3.172
	1/2	.500	.438	5.009
1-1/2				
	20	.035	1.430	.5476
	18	.049	1.402	.7593
	17	.058	1.384	.8932
	16	.065	1.370	.9962
	14	.083	1.334	1.256
	13	.095	1.310	1.426
	12	.109	1.282	1.619
	11	.120	1.260	1.769
	10	.134	1.232	1.955
	5/32	.156	1.187	2.239
	3/16	.188	1.125	2.634
	7/32	.219	1.062	2.996
	1/4	.250	1.000	3.338
	9/32	.281	.938	3.658
	5/16	.313	.875	3.968
	3/8	.375	.750	4.506
	7/16	.438	.625	4.968
	1/2	.500	.500	5.340
1-9/16				
	20	.035	1.493	.5712
	16	.065	1.432	1.040
	11	.120	1.323	1.849
	5/32	.156	1.250	2.344
	3/16	.187	1.187	2.761
	1/4	.250	1.062	3.506
	3/8	.375	.812	4.758
(Continued)				

ROUND TUBING

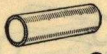
COLD DRAWN SEAMLESS MECHANICAL
Low Carbon—Random Lengths 5 to 24 Ft.

Size O. D.	B. W. Ga.	Average Wall Thickness Dec. Inches	Nominal I.D.	Wt. Per Ft. Lbs.
(Continued)				
1-5/8				
	20	.035	1.555	.5943
	18	.049	1.527	.8248
	17	.058	1.509	.9707
	16	.065	1.495	1.083
	14	.083	1.459	1.367
	13	.095	1.435	1.552
	11	.120	1.385	1.929
	5/32	.156	1.312	2.447
	3/16	.188	1.250	2.885
	7/32	.219	1.187	3.289
	1/4	.250	1.125	3.671
	9/32	.281	1.063	4.033
	5/16	.313	1.000	4.386
	3/8	.375	.875	5.006
	7/16	.438	.749	5.553
	1/2	.500	.625	6.008
1-11/16				
	16	.065	1.558	1.127
	11	.120	1.447	2.010
	5/32	.156	1.376	2.552
	3/16	.187	1.312	3.012
	1/4	.250	1.188	3.839
1-3/4				
	18	.049	1.652	.8902
	16	.065	1.620	1.170
	14	.083	1.584	1.478
	13	.095	1.560	1.679
	11	.120	1.510	2.089
	10	.134	1.482	2.313
	5/32	.156	1.437	2.656
	3/16	.188	1.375	3.136
	7/32	.219	1.312	3.581
	1/4	.250	1.250	4.005
	9/32	.281	1.188	4.409
	5/16	.313	1.125	4.804
	3/8	.375	1.000	5.507
	7/16	.438	.875	6.137
	1/2	.500	.750	6.675
	9/16	.563	.624	7.137
	5/8	.625	.500	7.509
1-13/16				
	3/16	.188	1.439	3.263
	7/32	.219	1.375	3.728
	1/4	.250	1.313	4.173
1-7/8				
	16	.065	1.745	1.257
	13	.095	1.685	1.806
	12	.109	1.657	2.056
	11	.120	1.635	2.249
	5/32	.156	1.563	2.864
	3/16	.188	1.500	3.387
	7/32	.219	1.438	3.873
	1/4	.250	1.375	4.339
	9/32	.281	1.313	4.784
	5/16	.313	1.250	5.222
	3/8	.375	1.125	6.008
	7/16	.437	1.000	6.722

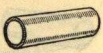
Size O. D.	B. W. Ga.	Average Wall Thickness Dec. Inches	Nominal I.D.	Wt. Per Ft. Lbs.
1-7/8				
	1/2	.500	.875	7.343
	9/16	.563	.750	7.889
	5/8	.625	.625	8.344
1-15/16				
	5/32	.156	1.625	2.969
	7/32	.219	1.499	4.021
	1/4	.250	1.437	4.507
2				
	22	.028	1.944	.5897
	20	.035	1.930	.7345
	18	.049	1.902	1.021
	16	.065	1.870	1.343
	14	.083	1.834	1.699
	13	.095	1.810	1.933
	11	.120	1.760	2.409
	10	.134	1.732	2.670
	5/32	.156	1.687	3.072
	3/16	.188	1.625	3.638
	7/32	.219	1.562	4.166
	1/4	.250	1.500	4.673
	9/32	.281	1.437	5.159
	5/16	.313	1.375	5.639
	11/32	.344	1.313	6.084
	3/8	.375	1.250	6.508
	7/16	.438	1.125	7.307
	1/2	.500	1.000	8.010
	9/16	.563	.874	8.640
	5/8	.625	.750	9.178
	3/4	.750	.500	10.01
2-1/8				
	16	.065	1.995	1.430
	14	.083	1.959	1.810
	13	.095	1.935	2.060
	12	.109	1.907	2.347
	11	.120	1.885	2.570
	5/32	.156	1.813	3.281
	3/16	.188	1.750	3.889
	7/32	.219	1.687	4.458
	1/4	.250	1.625	5.006
	9/32	.281	1.563	5.534
	5/16	.313	1.500	6.057
	3/8	.375	1.375	7.009
	7/16	.438	1.250	7.892
	1/2	.500	1.125	8.678
	9/16	.562	1.000	9.392
	5/8	.625	.875	10.01
2-1/4				
	16	.065	2.120	1.517
	14	.083	2.084	1.921
	13	.095	2.060	2.186
	11	.120	2.010	2.730
	5/32	.156	1.937	3.489
	3/16	.188	1.875	4.140
	7/32	.219	1.813	4.750
	1/4	.250	1.750	5.340
	9/32	.281	1.688	5.909
	5/16	.313	1.625	6.475
	11/32	.344	1.562	7.002
	3/8	.375	1.500	7.509
	7/16	.438	1.375	8.476

(Continued)

Prompt shipment of carbon and alloy tubing from mill.

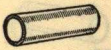


ROUND TUBING

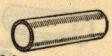


COLD DRAWN SEAMLESS MECHANICAL
Low Carbon—Random Lengths 5 to 24 Ft.

Size O. D.	Average Wall Thickness B. W. Ga.	Average Wall Thickness Dec. Inches	Nominal I.D.	Wt. Per Ft. Lbs.
(Continued)				
2-1/4				
	1/2	.500	1.250	9.345
	9/16	.563	1.124	10.14
	5/8	.625	1.000	10.85
	3/4	.750	.750	12.02
2-5/16				
	7/32	.219	1.875	4.898
	1/4	.250	1.813	5.508
2-3/8				
	16	.065	2.245	1.604
	13	.095	2.185	2.313
	11	.120	2.135	2.890
	5/32	.156	2.062	3.697
	3/16	.188	2.000	4.391
	7/32	.219	1.937	5.043
	1/4	.250	1.875	5.674
	9/32	.281	1.813	6.284
	5/16	.313	1.750	6.893
	3/8	.375	1.625	8.010
	7/16	.438	1.500	9.061
	1/2	.500	1.375	10.01
	9/16	.563	1.249	10.90
	5/8	.625	1.125	11.68
2-1/2				
	16	.065	2.370	1.690
	14	.083	2.334	2.143
	13	.095	2.310	2.440
	11	.120	2.260	3.050
	10	.134	2.232	3.386
	5/32	.156	2.187	3.905
	3/16	.188	2.125	4.642
	7/32	.219	2.062	5.335
	1/4	.250	2.000	6.008
	9/32	.281	1.937	6.659
	5/16	.313	1.875	7.311
	11/32	.344	1.812	7.921
	3/8	.375	1.750	8.511
	7/16	.438	1.625	9.646
	1/2	.500	1.500	10.68
	9/16	.563	1.375	11.65
	5/8	.625	1.250	12.52
	3/4	.750	1.000	14.02
2-9/16				
	1/4	.250	2.062	6.176
2-5/8				
	16	.065	2.495	1.777
	13	.095	2.435	2.567
	11	.120	2.385	3.210
	5/32	.156	2.312	4.114
	3/16	.188	2.250	4.893
	7/32	.219	2.187	5.627
	1/4	.250	2.125	6.341
	9/32	.281	2.063	7.035
	5/16	.313	2.000	7.729
	3/8	.375	1.875	9.011
	7/16	.438	1.751	10.23
	1/2	.500	1.625	11.35
2-5/8				
	9/16	.562	1.501	12.40
	5/8	.625	1.375	13.35
2-3/4				
	16	.065	2.620	1.864
	13	.095	2.560	2.694
	11	.120	2.510	3.371
	5/32	.156	2.437	4.322
	3/16	.188	2.375	5.144
	7/32	.219	2.312	5.920
	1/4	.250	2.250	6.675
	9/32	.281	2.187	7.410
	5/16	.313	2.125	8.147
	3/8	.375	2.000	9.512
	7/16	.437	1.875	10.82
	1/2	.500	1.750	12.02
	9/16	.562	1.625	13.15
	5/8	.625	1.500	14.18
	11/16	.688	1.374	15.15
	3/4	.750	1.250	16.02
	7/8	.875	1.000	17.52
	1	1.000	.750	18.69
2-7/8				
	16	.065	2.749	1.951
	13	.095	2.685	2.821
	11	.120	2.635	3.531
	5/32	.156	2.563	4.530
	3/16	.188	2.500	5.395
	7/32	.219	2.437	6.212
	1/4	.250	2.375	7.009
	9/32	.281	2.312	7.785
	5/16	.313	2.250	8.564
	3/8	.375	2.125	10.01
	7/16	.438	2.000	11.40
	1/2	.500	1.875	12.68
	9/16	.562	1.751	13.90
	5/8	.625	1.625	15.02
	3/4	.750	1.375	17.02
3				
	16	.065	2.870	2.037
	14	.083	2.834	2.586
	13	.095	2.810	2.947
	11	.120	2.760	3.691
	5/32	.156	2.687	4.738
	3/16	.188	2.625	5.646
	7/32	.219	2.562	6.505
	1/4	.250	2.500	7.343
	9/32	.281	2.437	8.160
	5/16	.313	2.375	8.982
	3/8	.375	2.250	10.51
	7/16	.437	2.125	11.98
	1/2	.500	2.000	13.35
	9/16	.563	1.875	14.65
	5/8	.625	1.750	15.85
	11/16	.687	1.625	16.99
	3/4	.750	1.500	18.02
	7/8	.875	1.250	19.86
	1	1.000	1.000	21.36
(Continued)				



ROUND TUBING



COLD DRAWN SEAMLESS MECHANICAL
Low Carbon—Random Lengths 5 to 24 Ft.

Size O. D.	Average Wall Thickness B. W. Ga.	Average Wall Thickness Dec. Inches	Nominal I.D.	Wt. Per Ft. Lbs.
(Continued)				
3-1/16				
	5/16	.312	2.438	9.193
	3/8	.375	2.312	10.77
3-1/8				
	16	.065	2.995	2.124
	11	.120	2.885	3.851
	3/16	.188	2.750	5.897
	7/32	.218	2.687	6.797
	1/4	.250	2.625	7.676
	5/16	.313	2.499	9.400
	3/8	.375	2.375	11.01
	7/16	.438	2.250	12.57
	1/2	.500	2.125	14.02
	9/16	.563	2.000	15.40
	5/8	.625	1.875	16.69
	3/4	.750	1.625	19.02
	7/8	.875	1.375	21.03
3-1/4				
	16	.065	3.120	2.211
	13	.095	3.060	3.201
	11	.120	3.010	4.011
	5/32	.156	2.938	5.155
	3/16	.188	2.875	6.148
	1/4	.250	2.750	8.010
	9/32	.281	2.688	8.910
	5/16	.313	2.625	9.818
	3/8	.375	2.500	11.51
	7/16	.438	2.375	13.15
	1/2	.500	2.250	14.69
	9/16	.563	2.125	16.16
	5/8	.625	2.000	17.52
	3/4	.750	1.750	20.03
	7/8	.875	1.500	22.19
	1	1.000	1.250	24.03
3-3/8				
	16	.065	3.245	2.298
	13	.095	3.185	3.328
	11	.120	3.135	4.172
	5/32	.156	3.063	5.363
	3/16	.188	3.000	6.399
	1/4	.250	2.875	8.344
	5/16	.313	2.749	10.24
	3/8	.375	2.625	12.02
	7/16	.438	2.501	13.74
	1/2	.500	2.375	15.35
	9/16	.563	2.249	16.91
	5/8	.625	2.125	18.36
	3/4	.750	1.875	21.03
3-1/2				
	16	.065	3.370	2.385
	13	.095	3.310	3.455
	11	.120	3.260	4.332
	10	.134	3.232	4.817
	5/32	.156	3.188	5.571
	3/16	.188	3.125	6.650
	7/32	.219	3.063	7.674
	1/4	.250	3.000	8.678
	9/32	.281	2.938	9.660
3-1/2				
	5/16	.313	2.875	10.65
	11/32	.344	2.812	11.59
	3/8	.375	2.750	12.52
	7/16	.438	2.625	14.32
	1/2	.500	2.500	16.02
	9/16	.563	2.374	17.66
	5/8	.625	2.250	19.19
	3/4	.750	2.000	22.03
	7/8	.875	1.750	24.53
	1	1.000	1.500	26.70
3-5/8				
	16	.065	3.495	2.471
	11	.120	3.385	4.492
	3/16	.188	3.250	6.901
	1/4	.250	3.125	9.011
	5/16	.313	3.000	11.07
	3/8	.375	2.875	13.02
	7/16	.438	2.750	14.91
	1/2	.500	2.625	16.69
	9/16	.563	2.501	18.41
	5/8	.625	2.375	20.03
3-3/4				
	13	.095	3.560	3.708
	11	.120	3.510	4.652
	5/32	.156	3.437	5.988
	3/16	.188	3.375	7.152
	1/4	.250	3.250	9.345
	5/16	.313	3.125	11.49
	3/8	.375	3.000	13.52
	7/16	.437	2.875	15.49
	1/2	.500	2.750	17.36
	5/8	.625	2.500	20.86
	11/16	.688	2.374	22.50
	3/4	.750	2.250	24.03
	7/8	.875	2.000	26.87
	1	1.000	1.750	29.37
3-7/8				
	11	.120	3.635	4.812
	3/16	.188	3.500	7.403
	1/4	.250	3.375	9.679
	5/16	.313	3.249	11.91
	3/8	.375	3.125	14.02
	7/16	.438	3.000	16.08
	1/2	.500	2.875	18.02
	5/8	.625	2.625	21.69
4				
	16	.065	3.870	2.732
	14	.083	3.834	3.472
	13	.095	3.810	3.962
	11	.120	3.760	4.973
	5/32	.156	3.687	6.404
	3/16	.188	3.625	7.654
	7/32	.219	3.562	8.843
	1/4	.250	3.500	10.01
	9/32	.281	3.438	11.16
	5/16	.313	3.375	12.33
	3/8	.375	3.250	14.52
	7/16	.437	3.126	16.66
(Continued)				

Prompt shipment of carbon and alloy tubing from mill.

ROUND TUBING

COLD DRAWN SEAMLESS MECHANICAL

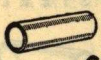
Low Carbon—Random Lengths 5 to 24 Ft.

Size O. D.	B. W. Ga.	Average Wall Thickness Dec. Inches	Nominal I.D.	Wt. Per Ft. Lbs.
(Continued)				
4				
	15/32	.469	3.062	17.68
	1/2	.500	3.000	18.69
	9/16	.563	2.875	20.67
	5/8	.625	2.750	22.53
	3/4	.750	2.500	26.03
	7/8	.875	2.250	29.20
	1	1.000	2.000	32.04
	1 1/4	1.250	1.500	36.71
4-1/8				
	11	.120	3.385	5.133
	3/16	.188	3.749	7.905
	1/4	.250	3.625	10.35
	5/16	.313	3.500	12.74
	3/8	.375	3.375	15.02
	7/16	.438	3.249	17.25
	1/2	.500	3.125	19.36
	9/16	.563	3.001	21.42
	5/8	.625	2.875	23.36
4-1/4				
	13	.095	4.060	4.216
	11	.120	4.010	5.293
	5/32	.156	3.937	6.821
	3/16	.188	3.875	8.156
	1/4	.250	3.750	10.68
	5/16	.313	3.625	13.16
	3/8	.375	3.500	15.52
	7/16	.437	3.375	17.83
	1/2	.500	3.250	20.03
	9/16	.563	3.125	22.17
	5/8	.625	3.000	24.20
	11/16	.688	2.875	26.17
	3/4	.750	2.750	28.04
	7/8	.875	2.500	31.54
	1	1.000	2.250	34.71
	*1 1/8	1.125	2.000	37.55
4-3/8				
	3/16	.188	4.001	8.407
	1/4	.250	3.875	11.01
	5/16	.313	3.749	13.58
	3/8	.375	3.625	16.02
	7/16	.438	3.500	18.42
	1/2	.500	3.375	20.69
	5/8	.625	3.125	25.03
	3/4	.750	2.875	29.04
4-1/2				
	13	.095	4.310	4.469
	11	.120	4.260	5.613
	5/32	.156	4.188	7.237
	3/16	.188	4.125	8.658
	7/32	.219	4.062	10.01
	1/4	.250	4.000	11.35
	5/16	.313	3.875	14.00
	3/8	.375	3.750	16.52
	7/16	.438	3.625	19.00
	1/2	.500	3.500	21.36
	9/16	.562	3.375	23.67
	5/8	.625	3.250	25.87
	11/16	.687	3.125	28.01
	3/4	.750	3.000	30.04

Size O. D.	B. W. Ga.	Average Wall Thickness Dec. Inches	Nominal I.D.	Wt. Per Ft. Lbs.
4-1/2				
	7/8	.875	2.750	33.88
	1	1.000	2.500	37.38
	*1 1/4	1.250	2.000	43.39
4-5/8				
	3/16	.187	4.251	8.909
	1/4	.250	4.125	11.68
	5/16	.313	4.000	14.41
	3/8	.375	3.875	17.02
	1/2	.500	3.625	22.03
	5/8	.625	3.375	26.70
4-3/4				
	13	.095	4.560	4.723
	11	.120	4.510	5.934
	3/16	.188	4.375	9.160
	1/4	.250	4.250	12.02
	5/16	.313	4.125	14.83
	3/8	.375	4.000	17.52
	7/16	.438	3.874	20.17
	1/2	.500	3.750	22.70
	9/16	.563	3.624	25.18
	5/8	.625	3.500	27.53
	3/4	.750	3.250	32.04
	7/8	.875	3.000	36.21
	1	1.000	2.750	40.05
4-7/8				
	7/16	.438	3.999	20.76
	1/2	.500	3.875	23.36
5				
	11	.120	4.760	6.254
	10	.134	4.732	6.964
	5/32	.156	4.687	8.070
	3/16	.188	4.625	9.662
	1/4	.250	4.500	12.68
	5/16	.313	4.375	15.67
	3/8	.375	4.250	18.52
	7/16	.438	4.125	21.34
	1/2	.500	4.000	24.03
	9/16	.562	3.876	26.68
	5/8	.625	3.750	29.20
	3/4	.750	3.500	34.04
	7/8	.875	3.250	38.55
	1	1.000	3.000	42.72
	1 1/8	1.125	2.750	46.56
	*1 1/4	1.250	2.500	50.06
5-1/8				
	5/16	.313	4.501	16.09
	1/2	.500	4.125	24.70
	5/8	.625	3.875	30.04
	1	1.000	3.125	44.06
5-1/4				
	11	.120	5.010	6.575
	3/16	.187	4.875	10.16
	1/4	.250	4.750	13.35
	5/16	.313	4.625	16.50
	3/8	.375	4.500	19.52
	1/2	.500	4.250	25.37
	5/8	.625	4.000	30.87
	3/4	.750	3.750	36.05
	7/8	.875	3.500	40.88
	1	1.000	3.250	45.39
	1 1/8	1.215	3.000	49.56

(Continued)

*These sizes are hot rolled Seamless Mechanical Tubing in our Stock.

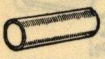


ROUND TUBING

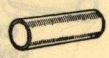
COLD DRAWN SEAMLESS MECHANICAL
Low Carbon—Random Lengths 5 to 24 Ft.

Size O. D.	Average Wall Thickness B. W. Ga.	Dec. Inches	Nominal I.D.	Wt. Per Ft. Lbs.
(Continued)				
5-3/8				
	3/16	.188	5.000	10.41
5-1/2				
	3/16	.187	5.125	10.67
	1/4	.250	5.000	14.02
	5/16	.313	4.875	17.34
	3/8	.375	4.750	20.53
	1/2	.500	4.500	26.70
	5/8	.625	4.250	32.54
	3/4	.750	4.000	38.05
	7/8	.875	3.750	43.22
	1	1.000	3.500	48.06
	*1 1/4	1.250	3.000	56.74
	*1 1/2	1.500	2.500	64.08
5-5/8				
	5/16	.313	5.001	17.76
	3/8	.375	4.875	21.03
	5/8	.625	4.375	33.38
5-3/4				
	3/16	.188	5.375	11.17
	1/4	.250	5.250	14.69
	3/8	.375	5.000	21.53
	1/2	.500	4.750	28.04
	5/8	.625	4.500	34.21
	3/4	.750	4.250	40.05
	7/8	.875	4.000	45.56
	1	1.000	3.750	50.73
6				
	11	.120	5.760	7.536
	3/16	.188	5.625	11.67
	1/4	.250	5.500	15.35
	3/8	.375	5.250	22.53
	1/2	.500	5.000	29.37
	9/16	.562	4.876	32.69
	5/8	.625	4.750	35.88
	3/4	.750	4.500	42.05
	7/8	.875	4.250	47.89
	1	1.000	4.000	53.40
	*1 1/2	1.500	3.000	72.09
6-1/4				
	3/16	.187	5.876	12.17
	1/4	.250	5.750	16.02
	5/16	.313	5.624	19.85
	3/8	.375	5.500	23.53
	1/2	.500	5.250	30.71
	5/8	.625	5.000	37.55
	3/4	.750	4.750	44.06
	1	1.000	4.250	56.07
6-1/2				
	1/4	.250	6.000	16.69
	3/8	.375	5.750	24.53
	1/2	.500	5.500	32.04
	5/8	.625	5.250	39.22
	3/4	.750	5.000	46.06
	1	1.000	4.500	58.74
6-3/4				
	3/16	.188	6.374	13.18
	1/4	.250	6.250	17.36
	3/8	.375	6.000	25.53
	1/2	.500	5.750	33.38
	5/8	.625	5.500	40.88
	3/4	.750	5.250	48.06
	1	1.000	4.750	61.41
7				
	3/16	.187	6.625	13.68
	1/4	.250	6.500	18.02
	3/8	.375	6.250	26.53
	1/2	.500	6.000	34.71
	3/4	.750	5.500	50.06
	1	1.000	5.000	64.08
7-1/4				
	1/4	.250	6.750	18.69
	3/8	.375	6.500	27.53
	1/2	.500	6.250	36.05
	5/8	.625	6.000	44.22
	3/4	.750	5.750	52.07
7-1/2				
	1/4	.250	7.000	19.36
	3/8	.375	6.750	28.54
	1/2	.500	6.500	37.38
	5/8	.625	6.250	45.89
	3/4	.750	6.000	54.07
	1	1.000	5.500	69.42
7-3/4				
	1/4	.250	7.250	20.03
	3/8	.375	7.000	29.54
	1/2	.500	6.750	38.72
8				
	1/4	.250	7.500	20.69
	3/8	.375	7.250	30.54
	1/2	.500	7.000	40.05
	3/4	.750	6.500	58.07
	1	1.000	6.000	74.76
8-1/4				
	1/2	.500	7.250	41.39
8-1/2				
	1/4	.250	8.000	22.03
	3/8	.375	7.750	32.54
	1/2	.500	7.500	42.72
	3/4	.750	7.000	62.08
	1	1.000	6.500	80.10
8-3/4				
	3/8	.375	8.000	33.54
	1/2	.500	7.750	44.06
9				
	1/4	.250	8.500	23.36
	1/2	.500	8.000	45.39
9-1/2				
	1/4	.250	9.000	24.70
	1/2	.500	8.500	48.06
10				
	1/4	.250	9.500	26.03
	1/2	.500	9.000	50.73
	1	1.000	8.000	96.12
	*1 1/8	1.125	7.750	106.63
10-1/2				
	1/4	.250	10.000	27.37
	1/2	.500	9.500	53.40
12				
	1/2	.500	11.000	61.41
	1	1.000	10.000	117.48

*These sizes are hot rolled Seamless Mechanical Tubing in our Stock.



ROUND TUBING



LARGE O. D. HEAVY WALL TUBING

Seamless Mechanical—Hot Rolled—.30 Max. Carbon

Size O. D.	B. W. Ga.	Dec. Inches	Nom. I. D.	Wt. Per Ft., Lbs.
10-3/4				
	.843	.843	9.064	89.2
	1	1.000	8.750	104.1
	1¼	1.250	8.250	126.8
11-3/4				
	.843	.843	10.064	98.2
	1	1.000	9.750	114.8
	1¼	1.250	9.250	140.2
12-3/4				
	¾	.750	11.250	96.12
	1	1.000	10.750	125.5
	1½	1.500	9.750	180.2
14				
	¾	.750	12.500	120.3
	1	1.000	12.000	138.8
	1.406	1.406	11.188	189.1

Sizes other than those listed are frequently in stock.

CYLINDER FINISH SEAMLESS MECHANICAL TUBING

Special Smooth I.D.—*Rockrite Quality

Identification Color: White

While our cold drawn seamless mechanical tubing satisfies most tubing needs, some uses demand an especially smooth inside finish and an inside diameter that is consistently made to the same close tolerances. Our smooth cylinder finish mechanical tubing made by the Rockrite Process answers this demand.

In the manufacture of this tubing the walls of the tube are compressed against a mandrel by the forging action of tapered dies. Since there is no drawing action, mandrel marks and scores are eliminated, and the smooth inside finish is in most cases ready for use as a cylinder without further processing.

The eccentricity of this type tubing is approximately one-half that of commercial cold drawn seamless, giving improved inside straightness tolerances. And the cold forging action of the Rockrite process improves both material strength and machinability.

*Copyrighted trade name.

Low Carbon—Random Lengths 5 to 24 Ft.

In our Chicago and Cleveland Plants

I.D. Tolerances: Minus .005 to Plus .000

Size O.D.	I.D. (Tolerance Limit)	Wt. Per Ft., Lbs.
1½	1.245/1.250	1.836
1¾	1.495/1.500	2.169
2	1.745/1.750	2.503
2	1.495/1.500	4.673
2¼	1.995/2.000	2.837
2¼	1.745/1.750	5.340
2½	2.245/2.250	3.171
2½	1.995/2.000	6.008
2¾	2.495/2.500	3.504
2¾	2.245/2.250	6.675
3	2.745/2.750	3.838
3	2.495/2.500	7.343
3⅛	2.495/2.500	9.400
3¼	2.995/3.000	4.172
3¼	2.495/2.500	11.51
3½	3.245/3.250	4.506
3½	2.995/3.000	8.678
3¾	3.245/3.250	9.345
3⅞	3.245/3.250	11.91
4	3.495/3.500	10.01
4¼	3.495/3.500	15.52
4½	3.995/4.000	11.35
4¾	4.245/4.250	12.02
4¾	3.995/4.000	17.52
4⅞	4.245/4.250	15.25
5	4.495/4.500	12.68
5½	4.995/5.000	14.02
5¾	5.245/5.250	14.69
5⅞	5.245/5.250	18.59
6	5.495/5.500	15.35
†6½	6.000	16.69

†Pump cylinder finish made to standard commercial tolerances — not Rockrite quality.

ROUND TUBING

COLD ROLLED WELDED MECHANICAL

Low Carbon—Random Lengths 4 to 24 Ft.

Ryerson Cold Rolled Welded Mechanical Tubing is manufactured to close gauge tolerances from MT 1010 No. 2 finish cold rolled strip steel. It is accurate as to wall thickness, and has an excellent surface finish. Inspection assures tubes within standard tolerances.

Ryerson welded tubes have the inside welding flash removed either by rolling or cutting—maximum height of flash, .010. Our welded tubing will meet your needs on applications requiring high finish, forming, bending, swedging, flattening, etc. Consult Ryerson's tube specialists.

Size O. D.	Average Wall Thickness B. W. Ga.	Dec. Inches	Nominal I.D.	Wt. Per Ft. Lbs.
3-8x22	.028	.319		.1038
20	.035	.305		.1271
18	.049	.277		.1706
16	.065	.245		.2152
1-2x22	.028	.444		.1411
20	.035	.430		.1738
18	.049	.402		.2360
16	.065	.370		.3020
5-8x22	.028	.569		.1785
20	.035	.555		.2205
18	.049	.527		.3014
16	.065	.495		.3888
3-4x22	.028	.694		.2159
20	.035	.680		.2673
18	.049	.652		.3668
16	.065	.620		.4755
7-8x22	.028	.819		.2533
20	.035	.805		.3140
18	.049	.777		.4323
16	.065	.745		.5623
14	.083	.709		.7021
1 x22	.028	.944		.2907
20	.035	.930		.3607
18	.049	.902		.4977
16	.065	.870		.6491
14	.083	.834		.8129
1 1-8x22	.028	1.069		.3280
20	.035	1.055		.4074
18	.049	1.027		.5631
16	.065	.995		.7359
14	.083	.959		.9237
1 1-4x22	.028	1.069		.3280
20	.035	1.180		.4542
18	.049	1.152		.6285
16	.065	1.120		.8226
14	.083	1.084		1.034
1 3-8x20	.035	1.305		.5009
18	.049	1.277		.6939
16	.065	1.245		.9094
14	.083	1.209		1.145
1 1-2x20	.035	1.430		.5476
18	.049	1.402		.7593
16	.065	1.370		.9962
14	.083	1.334		1.256
1 5-8x20	.035	1.555		.5943
18	.049	1.527		.8248
16	.065	1.495		1.083
14	.083	1.459		1.367
1 3-4x20	.035	1.680		.6411
18	.049	1.652		.8902
16	.065	1.620		1.170
14	.083	1.584		1.478
1 7-8x20	.035	1.805		.6878
18	.049	1.777		.9556
16	.065	1.745		1.257
14	.083	1.709		1.589
2 x20	.035	1.930		.7345
18	.049	1.902		1.021
16	.065	1.870		1.343
14	.083	1.834		1.699
2 1-8x20	.035	2.055		.7812
18	.049	2.027		1.086
16	.065	1.995		1.430
14	.083	1.959		1.810
2 1-4x20	.035	2.180		.8280
18	.049	2.152		1.152
16	.065	2.120		1.517
14	.083	2.084		1.921
2 3-8x18	.049	2.277		1.217
16	.065	2.245		1.604
14	.083	2.209		2.032
2 1-2x18	.049	2.402		1.283
16	.065	2.320		1.690
14	.083	2.334		2.143
2 5-8x18	.049	2.527		1.348
16	.065	2.495		1.777
14	.083	2.459		2.253
2 3-4x18	.049	2.652		1.413
16	.065	2.620		1.864
14	.083	2.584		2.364
2 7-8x18	.049	2.777		1.479
16	.065	2.745		1.951
14	.083	2.709		2.475
3 x18	.049	2.902		1.544
16	.065	2.870		2.037
14	.083	2.834		2.586
11	.120	2.760		3.691
3 1-8x16	.065	2.995		2.124
14	.083	2.959		2.697
3 1-4x16	.065	3.120		2.211
14	.083	3.084		2.807
3 3-8x16	.065	3.245		2.298
14	.083	3.209		2.918
3 1-2x16	.065	3.370		2.385
14	.083	3.334		3.029
3 5-8x16	.065	3.495		2.471
14	.083	3.459		3.140
3 3-4x16	.065	3.620		2.558
14	.083	3.584		3.251
3 7-8x16	.065	3.745		2.645
14	.083	3.709		3.361
4 x16	.065	3.870		2.732
14	.083	3.834		3.472

SQUARE TUBING

COLD DRAWN SEAMLESS MECHANICAL

Low Carbon—Random Lengths 5 to 24 Ft.

Size Inches	Average Wall Thickness B. W. Ga.	Average Wall Thickness Dec. Inches	Nominal Inside	Wt. per Ft., Lbs.
3-8x20		.035	.305	.1618
1-2x20		.035	.430	.2213
	18	.049	.402	.3005
	16	.065	.370	.3845
5-8x18		.049	.527	.3838
	16	.065	.495	.4950
3-4x20		.035	.680	.3403
	18	.049	.652	.4671
	16	.065	.620	.6055
	13	.095	.560	.8463
	11	.120	.510	1.028
7-8x18		.049	.777	.5504
	16	.065	.745	.7160
	13	.095	.685	1.008
	11	.120	.635	1.232
1 x20		.035	.930	.4593
	18	.049	.902	.6337
	16	.065	.870	.8265
	14	.083	.834	1.035
	12	.109	.782	1.321
	11	.120	.760	1.436
	3/16	.188	.625	2.076
1 1-4x20		.035	1.180	.5780
	18	.049	1.152	.8002
1 1-4x16		.065	1.120	1.048
	14	.083	1.084	1.317
	11	.120	1.010	1.844
	3/16	.188	.875	2.705
1 1-2x18		.049	1.402	.9668
	16	.065	1.370	1.269
	14	.083	1.334	1.600
	11	.120	1.260	2.252
	3/16	.188	1.125	3.354
1 3-4x18		.049	1.652	1.134
	16	.065	1.620	1.490
	14	.083	1.584	1.882
	11	.120	1.510	2.660
	3/16	.188	1.375	3.994
2 x16		.065	1.870	1.711
	14	.083	1.834	2.164
	13	.095	1.810	2.461
	11	.120	1.760	3.068
	3/16	.188	1.625	4.633
	1/4	.250	1.500	5.949
2 1-2x16		.065	2.370	2.152
	11	.120	2.260	3.884
	1/4	.250	2.000	7.650

SQUARE TUBING

COLD ROLLED WELDED MECHANICAL

Low Carbon—Random Lengths 4 to 24 Ft.

Ryerson Cold Rolled Welded Mechanical Tubing is manufactured to close gauge tolerances from MT 1010 No. 2 finish cold rolled strip steel. It is accurate as to wall thickness, and has an excellent surface finish. Inspection assures tubes within standard tolerances.

Ryerson welded tubes have the inside welding flash removed either by rolling or by cutting—maximum height of flash, .010. Our welded tubing will meet your needs on applications requiring high finish, forming, bending, swedging, flattening, etc. Consult the tube specialist at your neighboring Ryerson warehouse.

Size Inches	Average Wall Thickness B. W. Ga.	Average Wall Thickness Dec. Inches	Nominal Inside	Wt. per Ft., Lbs.
3-8x20		.035	.305	.162
	18	.049	.277	.217
	16	.065	.245	.274
1-2x20		.035	.430	.221
	18	.049	.402	.301
	16	.065	.370	.384
5-8x20		.035	.555	.281
	18	.049	.527	.384
	16	.065	.495	.495
3-4x20		.035	.680	.340
	18	.049	.652	.467
	16	.065	.620	.605
7-8x20		.035	.805	.400
	18	.049	.777	.550
	16	.065	.745	.716
1 x20		.035	.930	.459
	18	.049	.902	.634
	16	.065	.870	.826
1 1-8x20		.035	1.055	.519
1 1-8x18		.049	1.027	.717
	16	.065	.995	.937
1 1-4x20		.035	1.180	.578
	18	.049	1.152	.800
	16	.065	1.120	1.048
1 3-8x20		.035	1.305	.638
	18	.049	1.277	.884
	16	.065	1.245	1.158
1 1-2x20		.035	1.430	.697
	18	.049	1.402	.967
	16	.065	1.370	1.268
1 5-8x20		.035	1.555	.757
	18	.049	1.527	1.050
	16	.065	1.495	1.379
1 3-4x18		.049	1.652	1.134
	16	.065	1.620	1.489
1 7-8x18		.049	1.777	1.217
	16	.065	1.745	1.600
2 x18		.049	1.902	1.300
	16	.065	1.870	1.710

SQUARE TUBING

HOT ROLLED WELDED MECHANICAL

Inside Welding Flash Removed

Size B.W. O.D. Ga.	Dec. Inches	Nominal Inside	Wt. per Ft., Lbs.
⅞x14	.083	.709	.894
1 x14	.083	.834	1.035
1⅛x14	.083	.959	1.176
1¼x14	.083	1.084	1.317
11	.120	1.010	1.844
1⅜x14	.083	1.209	1.458
1½x14	.083	1.334	1.600
11	.120	1.260	2.252
1⅝x14	.083	1.459	1.740
1¾x14	.083	1.584	1.881
11	.120	1.510	2.660
1⅞x14	.083	1.709	2.023
2 x14	.083	1.834	2.164
13	.095	1.810	2.461
11	.120	1.760	3.068
2½x14	.083	2.334	2.728
11	.120	2.260	3.884
3 x14	.083	2.834	3.293
*⅛"	.125	2.750	4.888
*3/16"	.188	2.624	7.189
4 x*3/16"	.188	3.624	9.745

*Flash not removed.

STRUCTURAL TUBING

HOT ROLLED, BUTT WELDED TUBING

Square Sizes—Random Lengths 18 to 22 Ft.

Size in Inches	Nom. Wall Thickness	Wt. Per Ft., Lbs.
1¼	.135	2.20
1½	.140	2.70
2	.145	3.70
2½	.188	5.60
*3	.125	4.89
*3	.188	7.19
*4	.188	9.74

*These sizes are Hot Rolled Welded Mechanical. They are not Butt Welded.

Rectangular Size—Random Lengths 18 to 22 Ft.

In our New York Plant

Size in Inches	Nom. Wall Thickness	Wt. per Ft., Lbs.
2½ x 1½	.145	3.75

ROUND TUBING

COLD DRAWN .40 TO .50 CARBON TUBING

Round Sizes—Random Lengths 5 to 24 Ft.

In our Cleveland Plant

Size O. D.	Average Wall Thickness Fract. Inches	Dec. Inches	Size I. D.	Wt. Per Ft., Lbs.
2 9/16	¼	.250	2 1/16	6.176
2 11/16	5/16	.313	2 1/16	7.939
2 13/16	¼	.250	2 5/16	6.843
2 15/16	5/16	.313	2 5/16	8.775
3 1/16	¼	.250	2 9/16	7.511
3 3/16	5/16	.313	2 9/16	9.611
3 7/16	5/16	.313	2 13/16	10.450
3.535	.308		2.919	10.610
3 9/16	¼	.250	3 1/16	8.846
3 11/16	5/16	.313	3 1/16	11.280
4 3/16	5/16	.313	3 9/16	12.950
4.685	.398		3.889	18.212

COMPARISON OF PIPE AND TUBING SIZES

Comparison of Pipe Sizes With Nearest Cold Drawn Seamless Mechanical Tubing Sizes Available from Stock

STANDARD SIZES

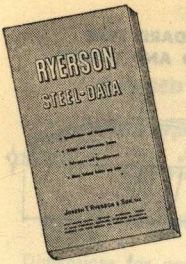
Nominal Pipe Size	Actual Pipe Size in Decimal Inches		Nearest Fractional Sizes Available in Cold Drawn Seamless Tubing			
	O. D.	Wall	O. D.	(Decimals)	Wall	(Decimals)
1/8	.405	.068	13/32	(.406)	16	(.065)
1/4	.540	.088	17/32	(.531)	14	(.083)
3/8	.675	.091	21/32	(.656)	13	(.095)
1/2	.840	.109	27/32	(.844)	12	(.109)
3/4	1.050	.113	1 1/16	(1.0625)	12	(.109)
1	1.315	.133	1 5/16	(1.313)	10	(.134)
1 1/4	1.660	.140	1 5/8	(1.625)	5/32	(.156)
1 1/2	1.900	.145	1 7/8	(1.875)	5/32	(.156)
2	2.375	.154	2 3/8	(2.375)	5/32	(.156)
2 1/2	2.875	.203	2 7/8	(2.875)	7/32	(.219)
3	3.500	.216	3 1/2	(3.500)	7/32	(.219)
3 1/2	4.000	.226	4	(4.000)	1/4	(.250)
4	4.500	.237	4 1/2	(4.500)	1/4	(.250)
4 1/2	5.000	.247	5	(5.000)	1/4	(.250)
5	5.563	.258	5 5/8	(5.625)	5/16	(.313)
6	6.625	.280	6 5/8	(6.625)	5/16	(.313)

EXTRA STRONG SIZES

Nominal Pipe Size	Actual Pipe Size in Decimal Inches		Nearest Fractional Sizes Available in Cold Drawn Seamless Tubing			
	O. D.	Wall	O. D.	(Decimals)	Wall	(Decimals)
1/8	.405	.095	13/32	(.406)	13	(.095)
1/4	.540	.119	17/32	(.531)	11	(.120)
3/8	.675	.126	21/32	(.656)	11	(.120)
1/2	.840	.147	27/32	(.844)	9	(.148)
3/4	1.050	.154	1 1/16	(1.0625)	5/32	(.156)
1	1.315	.179	1 5/16	(1.313)	3/16	(.187)
1 1/4	1.660	.191	1 5/8	(1.625)	3/16	(.187)
1 1/2	1.900	.200	1 7/8	(1.875)	7/32	(.219)
2	2.375	.218	2 3/8	(2.375)	7/32	(.219)
2 1/2	2.875	.276	2 7/8	(2.875)	9/32	(.281)
3	3.500	.300	3 1/2	(3.500)	5/16	(.313)
3 1/2	4.000	.318	4	(4.000)	5/16	(.313)
4	4.500	.337	4 1/2	(4.500)	5/16	(.313)
4 1/2	5.000	.355	5	(5.000)	3/8	(.375)
5	5.563	.375	5 5/8	(5.625)	3/8	(.375)
6	6.625	.432	6 5/8	(6.625)	3/8	(.375)

DOUBLE EXTRA STRONG

Nominal Pipe Size	Actual Pipe Size in Decimal Inches		Nearest Fractional Sizes Available in Cold Drawn Seamless Tubing			
	O. D.	Wall	O. D.	(Decimals)	Wall	(Decimals)
1/2	.840	.294	7/8	(.875)	5/16	(.313)
3/4	1.050	.308	1 1/16	(1.0625)	5/16	(.313)
1	1.315	.358	1 5/16	(1.313)	3/8	(.375)
1 1/4	1.660	.382	1 5/8	(1.625)	3/8	(.375)
1 1/2	1.900	.400	1 7/8	(1.875)	7/16	(.438)
2	2.375	.436	2 3/8	(2.375)	7/16	(.438)
2 1/2	2.875	.552	2 7/8	(2.875)	9/16	(.563)
3	3.500	.600	3 1/2	(3.500)	9/16	(.563)
3 1/2	4.000	.636	4	(4.000)	5/8	(.625)
4	4.500	.674	4 1/2	(4.500)	11/16	(.688)
4 1/2	5.000	.710	5	(5.000)	3/4	(.750)



Need More Data on Steel?

Use the . . .

Ryerson Steel Data Book

Companion volume to your Ryerson Stock List is the Ryerson Steel Data Book. In it you will find many more tables of steel information supplementing those located in the data section of this stock list. Included are facts and figures most frequently used by those who work with steel . . . additional weight tables • specifications • tolerances • safe working loads and much other data of practical assistance to purchasing agents, engineers and shop men. If you've been looking for a book like this, call or write your Ryerson plant. You'll like the handy size of this information-filled data book on steel.

a glimpse at the index:

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Boiler Specifications
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Bridge Specifications
Building Specifications
Chain Data
Channel Specifications
Cold Finished Tolerances
Concrete Reinforcing Bar Specs.
Corrugated Sheet Data
Crane Rail Data
Cutting Speeds and Feeds
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Tank Capacity Data
Thread Data
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Tubing Tolerances
Useful Formula Information
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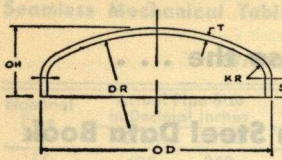
Weldability of Steels

RYERSON STEEL-DATA

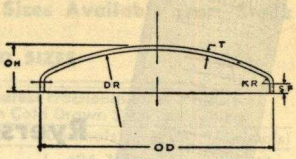
facts and figures for the steel user

HEADS

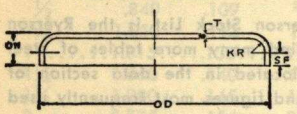
ASME TYPE FLANGED AND DISHED



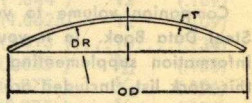
STANDARD TYPE FLANGED AND DISHED



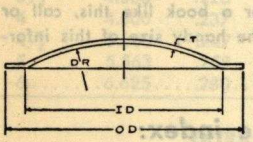
FLANGED ONLY



DISHED ONLY



COVER HEAD



KEY

O.D. ..... Outside Diameter
I.D. ..... Inside Diameter
T. ..... Thickness
S.F. ..... Straight Flange
O.H. ..... Overall Height
K.R. ..... Knuckle Radius
D.R. ..... Dish Radius

All other sizes and special types of heads including Flanged Only, Dished Only, Cover Heads, etc., are made to your specification from Carbon and Stainless Steels.

Send us your requirements.

When specifying Heads made to order, the following information should be given:

1. Quantity.
2. Thickness.
3. Outside Diameter.
4. Type (ASME-API or Standard flanged and dished, Flanged Only, Dished Only, Cover Heads with horizontal flange, etc.).
5. Length of straight portion of flange.
6. Trimming of flange, if required.
7. Grade of steel.
8. Location of manhole and openings, if required.

MANHOLE COVERS WITH FITTINGS

Ryerson Manhole Covers are pressed from ASTM A285 Firebox quality steel. They are designed for 250 pound pressure and conform to ASME code requirements. Each cover furnished complete with 2 pressed steel arches, 2 machine bolts and 1 asbestos gasket.

Carried in stock in 2 sizes

Nominal Size 11"x15"x½" Nominal Size 12"x16"x5/16"

MANHOLE SADDLES

Manhole Saddles are made in all standard sizes ⅜" to 1⅝" thick and curved to fit shells or heads. When ordering, consult the Ryerson Steel Data Book for further information if necessary.

HEADS

In our Chicago Plant

FLANGED AND DISHED HEADS IN STOCK

ASME Type Made From ASTM A285 Grade C

Flange Quality Steel Plate

Mill Test Reports are Furnished

Dimensions for popular sizes of ASME Type flanged and dished heads with 2" straight flanges are shown below.

Working pressures calculated by ASME Code formula with the pressure on the concave side and in temperature range of minus 20 to plus 650° F.

Size O.D. Inches	Overall Height, Inches	Depth Dish, Inches	Knuckle Radius, Inches	Dish Radius, Inches	Work. Press., Lbs. per Sq. In.	Weight Each Lbs.
1/4x24	6 1/4	4	1 1/2	24	137.6	52
30	8 1/4	6	1 7/8	24	137.6	76
36	9 1/4	7	2 1/4	30	110.0	106
42	10 1/4	8	2 5/8	36	91.7	142
48	11 1/8	8 7/8	2 7/8	42	78.6	181
5/16x24	6 7/8	4 9/16	1 1/2	20	206.3	65
30	8 5/16	6	1 7/8	24	171.9	95
36	9 1/4	6 15/16	2 1/4	30	137.5	132
42	10 1/4	7 15/16	2 5/8	36	114.6	176
48	11 3/16	8 7/8	2 7/8	42	98.3	225
3/8x24	6 1/4	3 7/8	1 1/2	24	206.3	77
30	8 1/4	5 7/8	1 7/8	24	206.3	114
36	9 1/4	6 7/8	2 1/4	30	165.1	158
42	10 1/4	7 7/8	2 5/8	36	137.6	210
48	11 5/16	8 15/16	2 7/8	42	117.9	269
60	13 1/4	10 7/8	3 5/8	54	91.7	409
1/2x24	6 3/8	3 7/8	1 1/2	24	275.1	102
30	8 5/16	5 13/16	1 7/8	24	275.1	151
36	9 5/16	6 13/16	2 1/4	30	220.1	210
42	10 5/16	7 13/16	2 5/8	36	183.4	278
48	11 1/4	8 3/4	2 7/8	42	157.2	356
60	13 1/4	10 3/4	3 5/8	54	122.3	542

Standard Type Made From Hot Rolled

Pressing Quality Steel

Dimensions for popular sizes of Standard Type flanged and dished heads carried in stock are shown below.

Not recommended for Pressure Work.

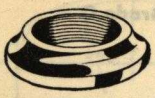
Size O.D. Inches	Straight Flange, Inches	Overall Height, Inches	Depth Dish, Inches	Knuckle Radius, Inches	Dish Radius, Inches	Weight Each, Lbs.
3/16x18	1	3 11/16	2 1/2	3/8	18	18
20	1	4	2 13/16	3/8	20	22
24	1 1/2	5	3 5/16	3/8	24	32
30	1 1/2	5 13/16	4 1/8	3/8	30	49

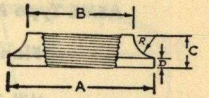
WELDING FLANGES

Drop Forged Steel

All welding flanges carried threaded from top.

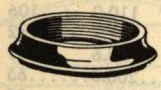
EXTRA HEAVY FLAT FLANGES

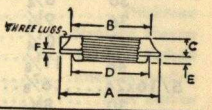




Bonney No.	Phoenix No.	Pipe Size, In.	A, In.	B, In.	C, In.	D, In.	R, In.	Wt. Lbs. per 100
3306	176	3/4	2 1/4	1 1/2	3/4	1/4	7/16	.45
3308	177	1	2 1/2	1 3/4	3/4	1/4	1/2	52
3310	178	1 1/4	2 7/8	2 1/16	3/4	1/4	9/16	66
3312	179	1 1/2	3 1/4	2 3/8	3/4	1/4	5/8	83
3316	180	2	3 3/4	2 7/8	3/4	1/4	11/16	.113
3320	181	2 1/2	4 1/4	3 1/2	1	1/4	3/4	153
3324	182	3	5 1/2	4 1/4	1	1/4	13/16	275
3328	183	3 1/2	6	4 7/8	1	1/4	7/8	335
3332	184	4	6 1/2	5 3/8	1 1/8	1/4	15/16	.392

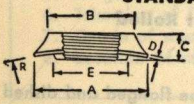
STANDARD HEAVY FLAT FLANGES





Bonney No.	Phoenix No.	Pipe Size, In.	A, In.	B, In.	C, In.	D, In.	E, In.	F, In.	Wt. Lbs. per 100
3001	250	1/8	1 3/8	7/8	3/8	27/32	3/32	3/64	9
3002	251	1/4	1 1/2	1	3/8	31/32	1/8	3/64	10
3003	252	3/8	1 5/8	1 1/16	3/8	31/32	1/8	3/64	11
3004	253	1/2	1 13/16	1 3/16	7/16	15/32	5/32	3/64	16
3006	254	3/4	2 1/16	1 7/16	1/2	1 11/32	5/32	1/16	.24
3008	255	1	2 5/16	1 3/4	19/32	1 23/32	3/16	1/16	36
3010	256	1 1/4	2 11/16	2 1/8	9/16	1 15/16	3/16	1/16	41
3012	257	1 1/2	3 1/32	2 3/8	9/16	2 5/16	3/16	1/16	53
3016	258	2	3 1/2	2 7/8	5/8	2 11/16	3/16	1/16	.72
3020	259	2 1/2	4 1/16	3 5/16	13/16	3 3/16	3/16	3/32	108
3024	260	3	4 5/8	3 15/16	13/16	3 11/16	3/16	3/32	120
3028	261	3 1/2	5 1/8	4 7/16	13/16	4 3/16	3/16	3/32	147
3032	262	4	5 13/16	4 15/16	15/16	4 3/4	3/16	1/8	191

STANDARD HEAVY CURVED FLANGES



In our Chicago Plant

Bonney No.	Phoenix No.	Pipe Size, In.	A, In.	B, In.	C, In.	D, In.	E, In.	R, In.	Wt. Lbs. per 100
3112A	152	1 1/2	3 1/8	2 13/32	3/4	1/8	2 11/32	15	.58
3116A	153	2	3 5/8	2 15/16	13/16	1/8	2 23/32	15	78
3120A	154	2 1/2	4 1/4	3 7/16	1	1/8	3 1/16	22	119
3124A	155	3	4 7/8	4 3/32	1	1/8	3 11/16	22	147
3128A	156	3 1/2	5 3/8	4 5/8	1 1/16	3/16	4 3/16	26	160
3132A	157	4	5 13/16	5 1/8	1 3/16	3/16	4 3/4	26	.211

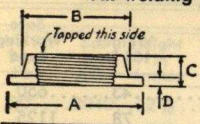
STAINLESS STEEL FLANGES

See Page 159

WELDING FLANGES

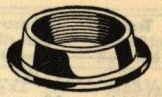
Drop Forged Steel

All welding flanges carried threaded from top.

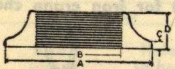


HEAVY TANK FLANGES

Flat



Bonney No.	Phoenix No.	Pipe Size, In.	A, In.	B, In.	C, In.	D, In.	Wt. Lbs. per 100
3202	101	1/4	1 1/4	3/4	5/16	1/8	Chgo. 5
3203	102	3/8	1 3/8	15/16	3/8	1/8	Chgo. 6
3204	103	1/2	1 1/2	1 1/8	7/16	1/8	8
3206	104	3/4	1 3/4	1 3/8	5/8	1/8	15
3208	105	1	2 1/8	1 11/16	5/8	5/32	24
3210	106	1 1/4	2 1/2	2	11/16	5/32	32
3212	107	1 1/2	3	2 3/8	3/4	5/32	50
3216	108	2	3 1/2	2 7/8	13/16	5/32	66
3220	109	2 1/2	4 1/4	3 1/2	1	3/16	116
3224	110	3	5	4 1/8	1	3/16	156
3228	111	3 1/2	5 1/2	4 5/8	1 1/16	7/32	Chgo. 188
3232	112	4	6	5 3/16	1 1/8	1/4	Chgo. 228



EXTRA HEAVY WELDING FLANGES

LARGE SIZE

Flat or Curved

Size B, In.	A, In.	D, In.	C, In.	Wt., Lbs.
5	7 1/2	1 1/2	1/2	7
6	8 1/2	1 1/2	1/2	8
8	10 1/2	1 3/4	5/8	12
10	13	2	3/4	16
12	15	2	13/16	22

COPPER FERRULES

Flanged Ferrules and special sizes of either plain or flanged ferrules can be furnished promptly from the factory.

In our Chicago Plant

Inside Diam., in Inches	Width in Inches	1/32 Thick per 100 Pieces *List Price	1/32 Thick per 100 Pieces Wt., Lbs.	1/16 Thick per 100 Pieces *List Price	1/16 Thick per 100 Pieces Wt., Lbs.
1 1/2	5/8	$ 9.30	3.00	$17.00	6.25
1 3/4	5/8	10.80	3.50	20.25	7.25
1 7/8	5/8	....	...	21.50	7.75
2	5/8	12.30	4.00	23.00	8.25
2 1/4	5/8	13.50	4.50	.....	.....
2 1/2	5/8	15.00	5.00	28.25	10.25
2 3/4	5/8	....	...	41.00	11.25
3	3/4	21.90	7.25	41.00	14.50
3 1/2	3/4	24.60	8.50	45.75	17.00
4	3/4	33.60	9.50	63.00	19.25

MALLEABLE BEVELED WASHERS

Washers slope 2" in 12" and are used on flanges of standard I beams, channels, and other structural sections.

Bolt Size Inches	Outside Dimensions Inches	Approx. Wt. in Lbs. per 100	Bolt Size Inches	Outside Dimensions Inches	Approx. Wt. in Lbs. per 100
3/8	1 1/4 x 1 1/4	9.2	3/4	1 1/2 x 1 1/2	16.0
1/2	1 1/4 x 1 1/4	9.0	7/8	2 x2	33.0
5/8	1 1/2 x 1 1/2	14.5	1	2 x2	31.0

*Write for discount.

We can also furnish these washers for use with Wide Flange Beams, in sizes 3/4", 7/8" and 1".

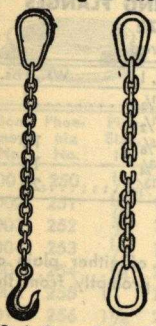
CHAIN

PROOF COIL CHAIN — **"BBB" QUALITY CHAIN**

Trade Size	Links Foot	Weight 100 Ft.	Safe Working Load	Links Foot	Weight 100 Ft.	Safe Working Load
3/16	12½	40	520	15½	43	650
¼	12	70	900	14	78	1125
5/16	10¾	105	1360	12	115	1700
⅜	9¾	158	1860	11	166	2325
7/16	8¾	210	2500	..	...	....
½	8	275	3300	9	295	4125
⅝	6⅜	410	5000	7⅛	430	6250
¾	5⅝	580	7075	6⅜	615	8850

SLING CHAIN

We can supply Taylor-Made heat treated Alloy Steel Sling Chain or two grades of iron, sling or crane chain, Grade "A" chain made from all puddled iron or Grade "B" (made from a box pile iron) conforming to A.S.T.M. specifications A-56-30 for iron crane chain.

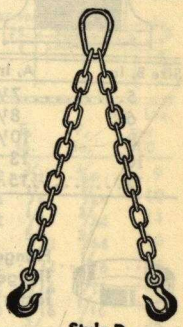


Style S

Style C

Style S is furnished with pear shaped link on one end and sling hook on other unless ring is specified.

Style C Sling Chain furnished with pear shaped ring on each end. Double Sling Chain furnished with either pear shaped link or ring in center and sling hooks on free ends. Grab hook can be furnished when specified at no extra cost.



Style D

Style D Double sling chain furnished with either pear shaped link or ring in center and sling hooks on free ends.

ALLOY STEEL CHAIN

Trade Size Inches	Weight per Foot	Safe Working Load	Trade Size Inches	Weight per Foot	Safe Working Load
¼	.8	2750	1	10.5	38750
⅜	1.6	6600	1⅛	12.6	44500
½	2.8	11250	1¼	15.4	57500
⅝	4.3	16500	1⅜	19.3	67000
¾	6.2	23000	1½	21.6	79500
⅞	8.5	28750	1⅝	27.0	85000
			1¾	29.0	94000

WEDGLOK SAFETY CONNECTING LINKS

Heat treated, drop forged alloy steel link for usage with heat treated alloy or other grades of chain and with wire rope. Can be used in assembly of sling chains or in other types of service including dragline buckets where resistance to abrasion and impact loads is severe.

RAILS

Open Hearth, New Billet Steel—A.S.C.E. Sections

Wt. Per Yard Lbs.	Section No.	Height in Inches	Width of Base	Width of Head	Stock Lengths Ft.	Track Bolts to Be Used	Track Spikes to Be Used
20	2040	2 5/8	2 5/8	1 11/32	20,30	1/2x2	1/2x3 1/2
25	2540	2 3/4	2 3/4	1 1/2	20,30	1/2x2 1/4	1/2x4
30	3040	3 1/8	3 1/8	1 11/16	20,30	5/8x2 1/2	1/2x4
40	4040	3 1/2	3 1/2	1 7/8	30	3/4x3	1/2x5
60	6040	4 1/4	4 1/4	2 3/8	33	3/4x3 3/4	5/16x5 1/2
80	8040	5	5	2 1/2	33	7/8x4	5/16x5 1/2
100	*10030	5 41/64	5 9/64	2 21/32	39	1 x4 5/8	5/16x5 1/2

*A.R.E.A. Sections. In our Chicago Plant.

RAIL CLIPS

No. 103—Oval Hole. No. 114—Round Hole.

	Clip			Bolt			
No.	Size, Inches	Hole, Inches	Weight, Pounds	Size, Inches	Weight, Pounds	Total Weight, Pounds	A.S.C.E. Rails, Pounds
103	2 1/4x2	1 1/16x2 25/32	0.58	3/4x2 1/4	0.66	1.24	55-100
114	1 11/16x1 1/2	21/32	0.24	5/8x1 3/4	0.41	0.65	20-50

JOINT BARS

RAIL SPLICES

Rail Size Lbs.	Weight per Pair, Lbs. without Bolts	Track Bolts to Be Used (4 per Pair)	Weight per Pair, Lbs. with Bolts	Length in Inches
20	4.86	1/2x2	5.69	16 1/8
25	5.70	1/2x2 1/4	6.57	16 1/8
30	10.45	5/8x2 1/2	11.97	16 1/8
40	16.10	3/4x3	18.64	20
60	32.40	3/4x3 3/4	35.25	24
80	44.10	7/8x4	48.64	24

All Rail Splices in above table have 4 holes.

SLIP AND GRAB HOOKS

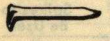
In our Chicago Plant

Size Chain, Inches	List Price †100	Size Chain, Inches	List Price †100	Size Chain, Inches	List Price †100
1/4	$17.60	7/16	$40.70	3/4	$158.40
5/16	22.00	1/2	55.00	*7/8	457.60
3/8	30.80	5/8	103.40	*1	739.20

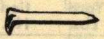
*7/8" and 1" Slip Hooks furnished Round Straight Eye only.
†Write for discounts.

TRACK SPIKES

A.S.T.M.-A-65-33, A.R.E.A.-1934 Emergency Provisions, 3-19-42



200 lb. Kegs



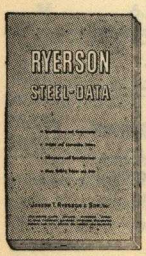
Size Inches	Size Extra	No. Spikes per Keg	Size Inches	Size Extra	No. Spikes per Keg
3/8x3	2.25	1270	9/16x5	.40	365
3/8x3 1/2	2.25 Chgo.	1135	9/16x5 1/2	.40	335
1/2x3 1/2	1.25	638	5/8x5	Base	300
1/2x4	1.00	550	5/8x5 1/2	"	264
1/2x4 1/2	1.00	505	5/8x6	"	244
1/2x5	1.00	460			

TRACK BOLTS

A.S.T.M.—A-76-46

200 lb. Kegs

Size Inches	Square Nuts Size Extra	Square Nuts No. Bolts Per Keg	Hexagon Nuts Size Extra	Hexagon Nuts No. Bolts Per Keg
1/2x1 3/4	4.35	Chgo. 1021	...	...
2	4.10	967	...	...
2 1/4	3.80	Chgo. 918	...	...
2 1/2	3.55	Chgo. 874	...	...
5/8x2 1/2	2.00	525	...	...
3	1.50	481	2.20	503
3/4x3	.90	Chgo. 301	1.60	314
3 1/4	...	...	1.35	303
3 1/2	Base	279	1.10	292
3 3/4	"	Chgo. 269	1.10	281
4	"	261	1.10	272
4 1/4	"	242	...	...
4 1/2	"	Chgo. 245	1.10	255
7/8x4	"	179	1.10	187
4 1/8	"	Chgo. 176	1.10	184
4 1/4	"	162	...	...
4 1/2	"	168	1.10	175
1 x4 1/2	"	Chgo. 123	1.10	128
4 5/8	"	Chgo. 121	1.10	126
5	"	Chgo. 116	...	...



Need More Data on Steel?

Condensed in one handy book, the size of this stock list, are 256 pages of practical data on steel . . . specifications, tolerances, weights, manufacturing practices, to mention only a part. You'll find the Ryerson Steel Data Book the ideal companion to this stock list. Just phone or write for one.

ROUND WIRE

BLACK SOFT ANNEALED

Catch Weight Coils

Steel Wire Gauge	Wt. per 100 Ft., Lbs.	Steel Wire Gauge	Wt. per 100 Ft., Lbs.	Steel Wire Gauge	Wt. per 100 Ft., Lbs.
No. 3	15.84	No. 8	7.00	No. 13	2.23
No. 4	Chgo. 13.54	No. 9	5.87	No. 14	1.71
No. 5	11.43	No. 10	4.86	No. 15	1.38
No. 6	9.83	No. 11	3.87	No. 16	1.04
No. 7	8.36	No. 12	2.97	No. 17	.78
				No. 18	.60

SOFT GALVANIZED

Catch Weight Coils

Steel Wire Gauge	Steel Wire Gauge	Steel Wire Gauge	Steel Wire Gauge
No. 3 Chgo.	No. 8	No. 11	No. 14
No. 6	No. 9	No. 12	No. 16
No. 7	No. 10	No. 13	No. 18

STONE—BLACK ANNEALED

12 Lb. Stones

Steel Wire Gauge	Decimal Equivalent	Steel Wire Gauge	Decimal Equivalent	Steel Wire Gauge	Decimal Equivalent
No. 16	(.0625")	No. 19	(.041")	No. 22	(.028")
No. 17	(054")	No. 20	(.035")	No. 23	(.025")
No. 18	(.047")	No. 21	(.032")		

METAL WORKERS MARKING CRAYONS

Genuine Talc. In Boxes containing one gross.

1/4" Round, 5" long Chgo.	3/16"x1 1/4"x5" long Chgo.
1/4" Square, 5" long	3/16"x1/2"x5" long

BETHLEHEM WIRE ROPE

We carry a complete line of Bethlehem Wire Rope in all sizes, grades and constructions:

"Purple Strand" (improved plow steel), Plow Steel; Preformed and Non-Preformed; 6x19, 6x37 construction; Fiber Core and Independent Wire Rope Core.

Also all necessary fittings. For complete information call or write for bulletin.

6 x 19 CLASS ROPE

"Purple Strand" and Plow Steel

Fiber Core and Independent Wire Rope Core

Diam. in Inches	Breaking Strength in Tons of 2000 Lb. Imp. Plow Steel Fibre Core	IWRC	Plow Steel Fiber Core
1/4	2.74		2.39
5/16	4.26	...	3.71
3/8	6.10	6.56	5.31
7/16	8.27	8.9	7.19
1/2	10.7	11.5	9.35
9/16	13.5	14.5	11.8
5/8	16.7	18.0	14.5
3/4	23.8	25.6	20.7
7/8	32.2	34.6	28.0
1	41.8	45.0	36.4
1 1/8	52.6	56.6	45.7
1 1/4	64.6	69.5	56.2
1 3/8	77.7	83.5	67.5
1 1/2	92.0	98.9	80.0
1 5/8	107.0	115.0	93.4
1 3/4	124.0	134.0	108.0
1 7/8	141.0	152.0	123.0
2	160.0	172.0	139.0
2 1/8	179.0	193.0	156.0
2 1/4	200.0	215.0	174.0

6 x 37 CLASS ROPE

"Purple Strand" and Plow Steel

Fiber Core and Independent Wire Rope Core

Diam. in Inches	Breaking Strength in Tons of 2000 Lb. Imp. Plow Steel Fibre Core	IWRC	Plow Steel Fiber Core
1/4	2.59		2.25
5/16	4.03	...	3.50
3/8	5.77	6.20	5.02
7/16	7.82	8.41	6.80
1/2	10.2	11.0	8.85
9/16	12.9	13.9	11.2
5/8	15.8	17.0	13.7
3/4	22.6	24.3	19.6
7/8	30.6	32.9	26.6
1	39.8	42.8	34.6
1 1/8	50.1	53.9	43.5
1 1/4	61.5	66.1	53.5
1 3/8	74.1	79.7	64.5
1 1/2	87.9	94.5	76.4
1 5/8	103.0	111.0	89.3
1 3/4	119.0	128.0	103.0
1 7/8	136.0	146.0	118.0
2	154.0	166.0	134.0
2 1/8	173.0	186.0	150.0
2 1/4	193.0	208.0	168.0

FITTINGS—We also furnish all necessary fittings for Bethlehem Wire Rope.

RYERSON GLYCO BABBITT METAL

Well Known Lead Base Metals of Highest Quality in 5 Standard Grades, also Special Analyses

The Glyco Babbitts, manufactured in our own foundry from premium grades of virgin metals, are alloyed to meet exacting physical specifications.

Turbo Glyco—Our highest grade, performs excellently under the most severe operating conditions. It is especially well suited for electrical machinery, turbines or any application in which bearings are subjected to excessive pressures at high speeds. Brinell Hardness from 30 to 32. Both Turbo and Marine Glyco will satisfactorily replace the more expensive tin base metals.

Marine Glyco—A very high-grade babbitt metal intended for severe applications where the exceptional qualities of Turbo Glyco aren't necessary. It is ideal for electric motors, generators, medium powered engines and machinery of all kinds. Brinell Hardness range from 27 to 29.

Standard Glyco—An excellent grade for all ordinary conditions of service. An all-around babbitt for general repair purposes. Brinell Hardness from 23.5 to 24.5.

Heavy Pressure Mill Glyco—Especially developed for heavy-duty service where operating temperatures are high. Used for roll neck bearings in steel mills, cement mills and applications which require a high-grade but moderately priced babbitt. Brinell Hardness from 24 to 26.

Transmission Glyco—Recommended for applications where stresses are not severe and the requirements do not warrant the use of a higher grade metal. It is generally used on light machinery or shafting where economy is the prime factor. Brinell Hardness ranges from 22 to 23.

Plus 4 Babbitt—a clean, inexpensive alloy. Excellent for lead hammers, grouting foundation bolts and light duty bearings.

Special Babbitt—We also manufacture Special Babbitts to your specifications from the highest grades of new metals. Send us details when requesting quotation.

All grades of Glyco are carried in stock for immediate shipment. They are packed in 10, 25, 50, 100 and 250 lb. boxes. Also furnished in deeply notched pigs which weigh about 40 lbs. Write for technical bulletin or for data on pouring bearings.

ALL-SOL SOLDERING FLUX

A special flux used in soldering Allegheny Metal and other 18-8 Stainless Alloys. All-Sol is particularly well suited for use on all hard-to-solder metals except aluminum. Sold in pint, half gallon and gallon containers.

STAINLESS STEEL POLISHING POWDER

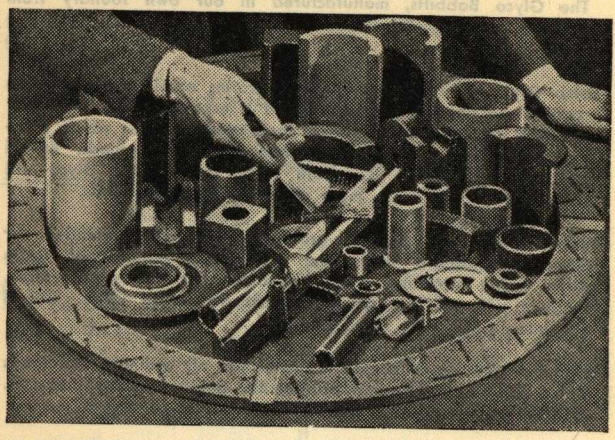
Excellent for removing heat tint after soldering. Will not scratch, leaves surface bright. Packed in 1 or 5 lb. cans.

RYERTEX BEARINGS

Water, Oil or Grease Lubricated—

Non-Metallic—Widely Used and Approved—

Formed To Your Specifications



Ryertex Non-Metallic Bearings are made of cotton fabric impregnated with phenolic resin and moulded under heat and pressure to any desired form. These bearings combine the wearing qualities and strength of the tightly woven fabric with the extremely hard surface of the thermo setting resin. Dense, strong and resilient—Ryertex Bearings are capable of withstanding very heavy loads or severe shock without deforming. They possess excellent water-lubrication properties which permit ideal operation either submerged or under a stream of water. Ryertex, whether water, oil or grease lubricated, has an extemely low co-efficient of friction that assures long life and economical, trouble-free service.

Ryertex Bearings are used in mills for rolling steel, brass, copper, aluminum, etc.; also for stern tube, rudder stock, pintle bearings and other marine applications; paper mill bearings and thousands of other special bearings in all industries.

Physical Properties

Specific Gravity	1.37
Weight per Cubic Inch, ounces	0.8
Modulus of Elasticity, psi	1,500,000
Tensile Strength with grain, psi	9,400
Tensile Strength across grain, psi	7,000
Compressive Strength, Flat, psi	37,500
Compressive Strength, Edge, psi	25,000
Bending Strength, psi	18,000
Water Absorption in 100 hrs	1.07%
Rockwell M Hardness	85-100
Maximum Operating Temperature (°F.)	275
Thermal Coefficient Expansion	30 x 10-6
Average Coefficient of Friction, water lubricated	0.004
Permanent Set per 1" thickness under load of 1000 psi	.002

Write today for more explicit details on your particular bearing application. Ryertex engineers will gladly work with you on any type of bearing problem.

CONCRETE REINFORCING BARS

Furnished in straight lengths or fabricated and bent to conform to any engineering requirements.

In ordering bent reinforcing bars always give dimensions from outside to outside of bars.

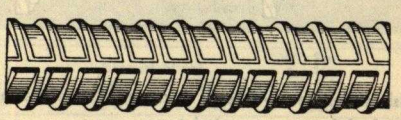
Our engineers are prepared to assist the trade on any reinforcing problems and will prepare designs, make estimates, and submit either, lump sum or pound prices on any work requiring reinforcing materials.

NEW BILLET DEFORMED BARS carried in stock are of intermediate grade steel. Structural and hard grade bars can be obtained promptly from Mill.

Intermediate grade bars have an ultimate tensile strength from 70,000 to 90,000 lbs. per square inch and a minimum yield point of 40,000 lbs. per square inch.

All new billet bars conform to A.S.T.M. specifications, serial A-15-39 and A305-50.

NEW BILLET DEFORMED ROUNDS



Bar No.	Bar Size in Inches	Nominal Dimensions—Inches Diameter	Area—Sq. In.	Perimeter	Weight Per Ft., Lbs.	Size Extra
2	* ¼ rd.	0.250	0.05	0.786	0.167	1.90
3	⅜ rd.	0.375	0.11	1.178	0.376	.80
4	½ rd.	0.500	0.20	1.571	0.668	.50
5	⅝ rd.	0.625	0.31	1.963	1.043	.25
6	¾ rd.	0.750	0.44	2.356	1.502	.15
7	⅞ rd.	0.875	0.60	2.749	2.044	.15
8	1 rd.	1.000	0.79	3.142	2.670	.10
9	**1 sq.	1.128	1.00	3.544	3.400	.10
10	**1⅛ sq.	1.270	1.27	3.990	4.303	.10
11	**1¼ sq.	1.410	1.56	4.430	5.313	.10

*Quarter inch bars are plain round, not deformed.

**All bars are rounds. These sizes are equivalent in cross section area to the standard square reinforcing bar sizes indicated. Rail steel bars can be furnished.

REINFORCING ACCESSORIES

Bar Spacers, Bar Chairs, Screed Chairs, Bar Ties, Inserts and other accessories can be furnished and delivered just as needed by the progress of building operations.

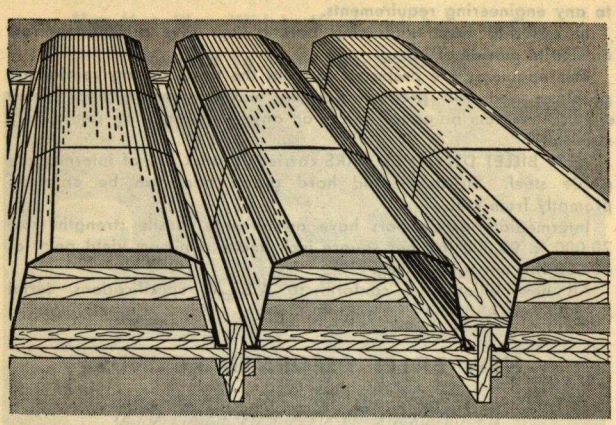
CAISSON RINGS

For the support of wood lagging in deep foundation construction. These rings are made in two half rings and are bolted together with either one or two standard machine bolts at each connection.

They can be furnished made from flat bars with ends bent to form lugs for bolting the halves together, or made from standard structural steel channels with plates welded on at right angles to ends to form connections.

As Caisson Rings are sold by weight, Channel Rings are generally more economical than Flat Bar Rings of the same stiffness, and are much easier to handle because of their lighter weight.

STEEL FORMS FOR CONCRETE JOIST CONSTRUCTION



We furnish either Removable or Permanent Steel Forms of leading makes, and of plain or corrugated type.

Standard removable steel forms give depth of joists of 6, 8, 10, 12 and 14 inches, and the forms are either 20 or 30 inches wide.

Special filler forms for filling odd spaces can be furnished in widths of 10, 15, 20 and 30 inches.

REINFORCING ACCESSORIES

Bar Spacers, Bar Chairs, Screed Chairs, Bar Ties, Inserts and other accessories can be furnished and delivered just as needed by the progress of building operations.

Metal Road Strip, Pins, Bar Supports and Expansion Joints, used by many states in the construction of concrete roads can be furnished to meet any specification.

STEEL JOISTS AND ACCESSORIES

Can be furnished from Mill.

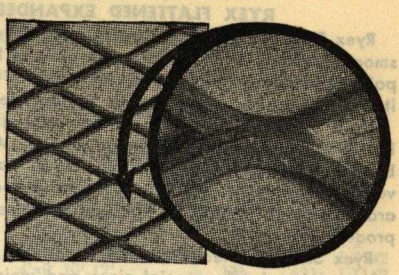
STEEL SPIRALS FOR CONCRETE REINFORCEMENT

Made from Hot Rolled Wire Rod, in ¼", ⅜", ½" and ⅝" diameter, complete with steel channel spacers. Collapsible for shipment. To be used for reinforcing concrete columns.

RYEX EXPANDED METAL

Ryex expanded metal is expanded from a solid sheet of steel. It is more rigid than an equal weight of solid steel plate or wire mesh. It can be cut to any shape retaining its original strength.

All sharp edges have been positively removed from Ryex Metal Standard Mesh and Ryex Flattened Mesh.



RYEX STANDARD EXPANDED METAL

In Stock for Immediate Shipment

For Making Partitions, Window Guards, Machinery Safety Guards

Style Designation*	Size of Sheet Width Ft., In.	Size of Sheet Lgth. Ft., In.	Wt. Per Sq. Ft. Plain Lbs.	Size of Mesh (Approx.) Inches
½" No. 18	6-0	8-8	0.77	½x1¼
½" No. 18	4-0	8-8	0.77	½x1¼
¾" No. 16	6-6	8-0	0.51	⅞x2
¾" No. 13	6-0	8-0	0.80	⅞x2
¾" No. 13	4-0	8-0	0.80	⅞x2
¾" No. 10	4-0	8-0	1.20	⅞x2
¾" No. 9	4-0	8-0	1.80	⅞x2
1½" No. 13	6-0	8-0	0.60	1⅜x3
1½" No. 13	4-0	8-0	0.60	1⅜x3
1½" No. 10	6-0	8-0	0.79	1⅜x3
1½" No. 10	4-0	8-0	0.79	1⅜x3
1½" No. 9	6-0	8-0	1.20	1⅜x3

Sheet of special size can be furnished. An additional charge of $5.00 per 100 pieces will be made for cutting a sheet to odd sizes.

RYEX STANDARD EXPANDED METAL

Shipped from Mill

Style Designation*	Size of Sheet Width Ft., In.	Size of Sheet Lgth. Ft., In.	Wt. Per Sq. Ft. Plain Lbs.	Size of Mesh (Approx.) Inches
½" No. 16	4-0	8-0	0.83	½x1¼
½" No. 13	6-6	8-0	1.47	½x1¼
⅝" No. 16	4-0	8-0	0.73	⅝x1¾
⅝" No. 13	4-0	8-0	1.19	⅝x1¾
⅝" No. 10	6-0	8-0	1.59	⅝x1¾
⅝" No. 9	6-0	8-0	2.40	⅝x1¾
1" No. 16	5-0	8-0	0.44	1 x2½
1" No. 13	4-8	8-0	0.68	1 x2½
1" No. 10	5-0	8-0	0.96	1 x2½
1" No. 9	5-0	8-0	1.44	1 x2½

The above meshes are not carried in stock, but can be furnished on special order from mill.

*Style Designation: First number represents nominal width of opening in inches. Second number represents approximate gauge of plate before expanding except No. 10 is expanded from approximately No. 13 gauge plate.

RYEX EXPANDED METAL

RYEX FLATTENED EXPANDED METAL

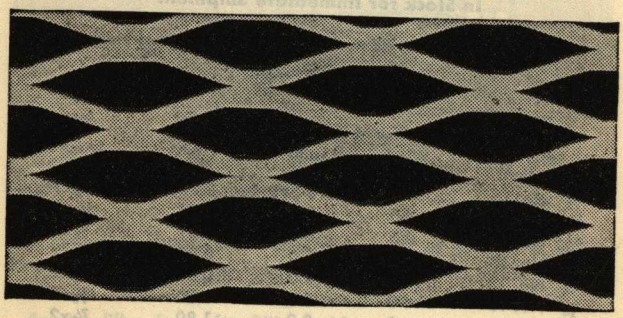
Ryex Flattened Expanded Metal is furnished in flat sheets with a smooth surface. It is sanitary and easy to keep clean and can be painted, tinned or galvanized. Attractive in design and low in cost, it is widely used in industry as standard equipment.

Used in combination with various edgings and easily fabricated into Machine Guards, Ventilator Guards, Air Conditioner Grilles, Electric Heating Grilles, Shelves, Trays, Baskets, Bins, Racks and various other items. It is also used in conjunction with Ryex Standard Expanded Metal in the manufacture of these and other products.

Ryex Stainless Steel Flattened Expanded Metal can be furnished on special order in special sizes and weights.

See Table for Stock Size. Sheets can be furnished to intermediate sizes or sheared to any pattern on special order.

Please write for folder showing uses and engineering data.



½" Actual Size

RYEX FLATTENED EXPANDED METAL
In Stock for Immediate Shipment

A smooth surface, flattened expanded metal for shelving, ornamental grille work, etc.

Style Designation*	Weight per Sq. Ft., Lbs.	Standard Sheet Widths in Inches	Standard Sheet Length Ft. and Inches
½" No. 18	0.72	36 & 48	8-0
½" No. 16	0.82	36 & 48	8-0
¾" No. 16	0.62	36 & 48	8-0
¾" No. 14	0.82	36 & 48	8-0
¾" No. 9	1.69	36 & 48	8-0
1½" No. 16	0.37	48	8-0
1½" No. 14	0.46	36	8-0
1½" No. 9	1.12	36 & 48	8-0

Gauge shown is thickness of material before expanding and flattening. Special size sheets can be furnished by arrangement with the Mill. Flattened mesh has an oil finish, but can be furnished galvanized,

RYEX FLATTENED EXPANDED METAL
Shipped from Mill

Style Designation*	Weight per Sq. Ft., Lbs. Plain	Standard Sheet Widths in Inches	Standard Sheet Length Ft. and Inches
½" No. 13	1.38	36 & 48	8-0
⅝" No. 16	0.69	36 & 48	8-0
⅝" No. 14	0.93	36 & 48	8-0
⅝" No. 9	2.26	36 & 48	8-0
1" No. 16	0.41	36 & 48	8-0
1" No. 14	0.55	36 & 48	8-0

*Style Designation: First number represents nominal width of opening in inches. Second number represents approximate gauge of plate before expanding except that No. 10 is expanded from approximately No. 13 gauge plate.

RYEX EXPANDED METAL

RYEX STANDARD EXPANDED METAL

Sizes, Approximate Dimensions, Gauges and Weights

Style Designation	Weight in Lbs. per Square Ft. Plain	Galv.	Standard Sizes	Size of Openings in Inches Width	Lgth.	Cen. to Cen. of Bridges in Inches Width	Lgth.
1/2" No. 18	.77	.91	3',4' or 6'x8' or 8'8"	3/8	15/16	.461	1.2
1/2" No. 16	.83	.97	4'x8',10',12'	3/8	15/16	.461	1.2
1/2" No. 13	1.47	1.73	6'6"x8',10',12'	3/8	7/8	.480	1.2
5/8" No. 16	.73	.86	4'x8'	1/2	1 3/8	.631	1.7142
5/8" No. 13	1.19	1.37	4'x8',10',12'	7/16	1 3/8	.631	1.7142
5/8" No. 10	1.59	1.80	6'x8',10',12'	7/16	1 5/8	.631	1.7142
5/8" No. 9	2.40	2.64	6'x8',10',12'	7/16	1 1/4	.706	1.7142
3/4" No. 16	.51	.59	6'6"x8',10',12'	11/16	1 3/4	.923	2.0
3/4" No. 13	.80	.92	3',4' or 6'x8',10',12'	3/4	1 11/16	.923	2.0
3/4" No. 10	1.20	1.36	4'x8',10',12'	3/4	1 5/8	.923	2.0
3/4" No. 9	1.80	1.95	4'x8',10',12'	11/16	1 15/16	.923	2.0
1" No. 16	.44	.51	5'x8'	1	2 3/16	1.09	2.4
1" No. 13	.68	.77	4'8"x8'	15/16	2	1.09	2.4
1" No. 10	.96	1.06	5'x8'	7/8	2	1.09	2.4
1" No. 9	1.44	1.55	5'x8'	7/8	1 15/16	1.09	2.4
1 1/2" No. 13	.60	.68	4' or 6'x8',10',12'	1 1/8	2 1/2	1.33	3.0
1 1/2" No. 10	.79	.89	4' or 6'x8',10',12'	1 1/8	2 1/2	1.33	3.0
1 1/2" No. 9	1.20	1.31	4' or 6'x8',10',12'	1 1/8	2 3/8	1.33	3.0

RYEX FLATTENED EXPANDED METAL

Sizes, Approximate Dimensions, Gauges and Weights

Style Designation	Weight in Lbs. per Square Ft. Plain	Galv.	Standard Sizes	Size of Openings in Inches Width	Lgth.	Cen. to Cen. of Bridges in Inches Width	Lgth.
1/2" No. 18	.72	.88	3' or 4'x8',10',12'	1/4	1	.461	1.281
1/2" No. 16	.82	.98	3' or 4'x8',10',12'	1/4	1	.461	1.281
1/2" No. 13	1.38	1.62	3' or 4'x8',10',12'	1/4	1	.480	1.281
5/8" No. 16	.69	.80	3' or 4'x8'	7/16	1 1/2	.631	1.830
5/8" No. 14	.93	1.08	3' or 4'x8'	7/16	1 1/2	.631	1.830
5/8" No. 9	2.26	2.44	3' or 4'x8'	3/8	1 1/2	.705	1.830
3/4" No. 16	.62	.74	3' or 4'x8',10',12'	1/2	1 11/16	.800	2.135
3/4" No. 14	.82	.94	3' or 4'x8',10',12'	1/2	1 11/16	.800	2.135
3/4" No. 9	1.69	1.86	3' or 4'x8',10'	1/2	1 11/16	.923	2.135
1" No. 16	.41	.50	3' or 4'x8'	7/8	2 1/4	1.091	2.562
1" No. 14	.55	.65	3' or 4'x8'	7/8	2 1/4	1.091	2.562
1 1/2" No. 16	.37	.44	3' or 4'x8',10',12'	1 1/16	2 3/4	1.333	3.203
1 1/2" No. 14	.46	.56	3' or 4'x8',10',12'	1 1/16	2 3/4	1.333	3.203
1 1/2" No. 9	1.12	1.28	3' or 4'x8',10'	1	2 1/16	1.333	3.203

RYEX SKY WALK EXPANDED METAL

An Expanded Metal weighing 3.14 lbs. per square foot.

Suitable for grating, machine platforms and steps, walkways, fly galleries, etc. Furnished plain or galvanized, in sheets 24", 36", 48" and 72" wide, 10 feet long. Size of mesh approximately 2" x 6". Special sizes by arrangement with Mill.

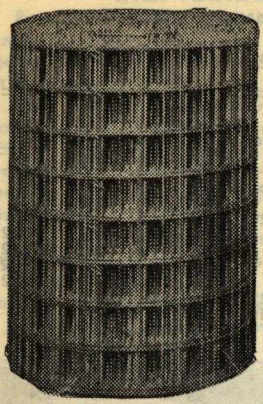
RYEX WALKWAY EXPANDED METAL

An extra heavy expanded metal weighing 4.27 pounds per square foot. Suitable for gratings, machine platforms and steps, walkways, fly galleries, etc. Furnished plain or galvanized in sheets 2'0", 3'0", 4'0" and 6'0" wide by 8'0" long. Size of mesh 1.41" x 4".

MILL TOLERANCES on standard stock size sheets of skywalk and walkway mesh are—Width—24" plus 1/4", 36" plus 3/8", 48" plus 5/8", and 72" plus 3/4", length plus 1/4".

Skywalk and Walkway Expanded Metal can be flattened. Maximum width that can be furnished is approximately 48". For sheets of special sizes refer to office.

ELECTRIC WELDED WIRE FABRIC



An electrically welded wire fabric furnished in rolls or flat sheets in various gauges and spacing of wires, the most common styles appearing in the table below. Other spacing and gauge of wires can be furnished for special requirements.

Style No.	Spacing of Wires		Gauge of Wires		Section Areas Per Foot of Width		Weight Per 100 Sq. Ft.	Size of Rolls, Ft.*
	Long. Inches	Trans. Inches	Long.	Trans.	Long. Sq. In.	Trans. Sq. In.	Lbs.	
Two Way Reinforcement								
66—1010	6	x 6	No. 10	No. 10	.029	.029	21	60"x150
66— 99	6	x 6	No. 9	No. 9	.035	.035	25	60"x150
66— 88	6	x 6	No. 8	No. 8	.041	.041	30	60"x150
66— 66	6	x 6	No. 6	No. 6	.058	.058	42	60"x150
66— 44	6	x 6	No. 4	No. 4	.080	.080	58	60"x150
44— 66	4	x 4	No. 6	No. 6	.087	.087	62	60"x150
Beam Wrapper and Gunite Reinforcement								
22—1414	2	x 2	No. 14	No. 14	.030	.030	21	60"x150
44—1313	4	x 4	No. 13	No. 13	.020	.020	14	60"x150

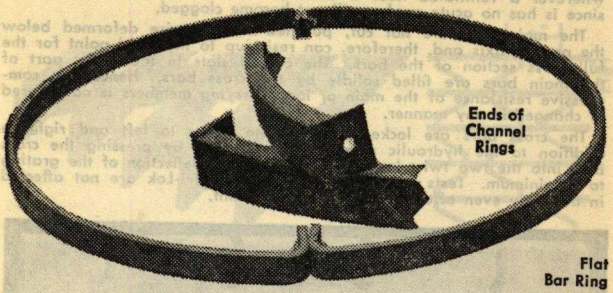
*** Electric Welded Fabric is generally furnished from the factory in widths of four, five and six feet, but can be furnished in multiples of the spacing of longitudinal wires up to a maximum width which varies with the size and spacing of the longitudinals. Approximate maximums: 56-inch to 72-inch for 2-inch spacing; 60-inch to 99-inch for 3-inch spacing; 68-inch to 100-inch for 4-inch spacing and 70-inch to 120-inch for 6-inch.**

Variable extras are charged for material furnished in widths less than 40-inch and for lengths under 6 feet. Mesh can be furnished either plain or galvanized. When plain fabric is ordered, the longitudinal wires will be plain but the cross wires will be plain or galvanized at the manufacturers' discretion. All wires on 4 x 4 No. 13 and Beam Wrapper and Gunite reinforcements are galvanized.

The tensile strength of Electric Welded Fabric is 60,000 to 70,000 lbs. per sq. in. When ordered to meet A.S.T.M. specifications, it will be furnished having a tensile strength of 70,000 lbs. per sq. in. or more.

CAISSON RINGS

For the support of wood lagging in deep foundation construction.



These rings are made in two half rings and are bolted together with either one or two standard machine bolts at each connection.

They can be furnished made from flat bars with ends bent to form lugs for bolting the halves together, or made from standard structural steel channels with plates welded on at right angles to ends to form connections.

The following tables show both Flat Bar Rings and Channel Rings of equivalent stiffness for most of the common diameters of caissons. Rings of any other diameters can be furnished, and made from any size and weight of flat bar or channel. They can be made in three or more segments if desired to meet special conditions.

As Caisson Rings are sold by weight, Channel Rings are generally more economical than Flat Bar Rings of the same stiffness, and are much easier to handle because of their lighter weight.

Flat Bar Rings

Diam. of Caisson	Size Bar Inches	Weight of Ring (2 halves) Lbs. 1-Bolt Conn.	2-Bolt Conn.
4'-0"	3x ¾	104	110
4'-3"	3x ¾	110	115
4'-6"	3x ¾	116	122
4'-9"	3x ¾	122	128
5'-0"	3x ¾	128	134
5'-3"	3x ¾	134	140
5'-6"	3x ¾	140	146
5'-9"	3x ¾	146	152
6'-0"	3x ⅞	178	185
6'-3"	3x ⅞	184	190
6'-6"	3x1	218	225
6'-9"	3x1	225	233
7'-0"	3x1	234	241
7'-3"	4x1	322	332
7'-6"	4x1	333	343
7'-9"	4x1	343	353
8'-0"	4x1	354	364
8'-3"	4x1	365	375
8'-6"	4x1	375	385
8'-9"	4x1	386	396
9'-0"	4x1	397	407

Channel Rings

Diam. of Caisson	Channel Size & Weight of	Weight of Ring (2 halves) Lbs. 1-Bolt Conn.	2-Bolt Conn.
4'-0"	3"x4.1#	58	62
4'-3"	3"x4.1#	61	65
4'-6"	3"x4.1#	64	69
4'-9"	3"x4.1#	67	72
5'-0"	3"x4.1#	71	75
5'-3"	3"x4.1#	74	78
5'-6"	3"x4.1#	77	81
5'-9"	3"x4.1#	80	85
6'-0"	4"x5.4#	110	115
6'-3"	4"x5.4#	114	120
6'-6"	5"x6.7#	149	158
6'-9"	5"x6.7#	154	163
7'-0"	5"x6.7#	160	168
7'-3"	6"x8.2#	201	212
7'-6"	6"x8.2#	208	218
7'-9"	6"x8.2#	214	224
8'-0"	6"x8.2#	221	231
8'-3"	6"x8.2#	227	238
8'-6"	6"x8.2#	233	244
8'-9"	6"x8.2#	240	250
9'-0"	6"x8.2#	246	257

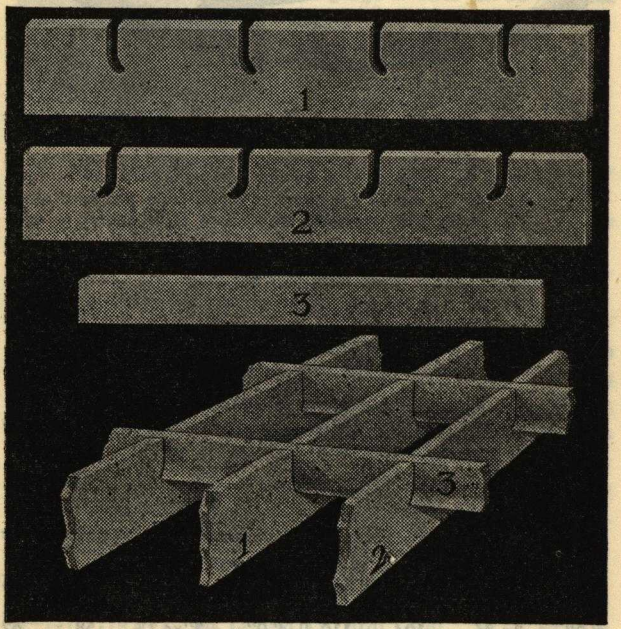
Bolts are not included in above weights.

TRI-LOK GRATING AND TREAD

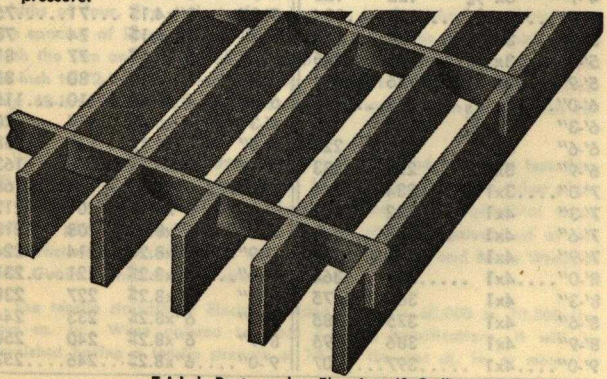
The construction of Tri-Lok entails a revolutionary principle of design. This grating is rivetless, boltless, yet triple locked and is adaptable wherever a ventilated floor is desired. It is ninety percent open and since is has no acute angles will not become clogged.

The main bars are not cut, punched or otherwise deformed below the neutral axis and, therefore, can resist up to the yield point for the full cross section of the bars. The curved slots in the upper part of the main bars are filled solidly by the cross bars. Hence, the compressive resistance of the main or load carrying members is not altered or changed in any manner.

The cross bars are locked by alternate twists to left and right in addition to the hydraulic pressure lock effected by pressing the cross bars into the two twist locks. This reduces the deflection of the grating to a minimum. Tests prove that the joints of Tri-Lok are not affected in any way even after reaching the yield point.



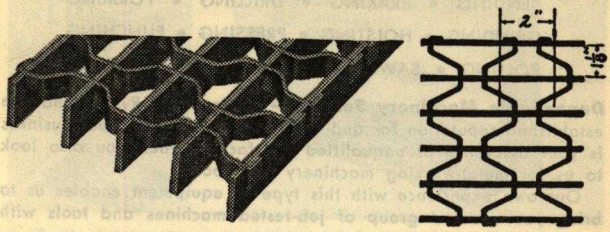
1. Bearing bars slotted for friction lock in one direction.
2. Alternate bearing bars slotted for friction lock in opposite direction.
3. Cross bars locked by twist in both directions under enormous hydraulic pressure.



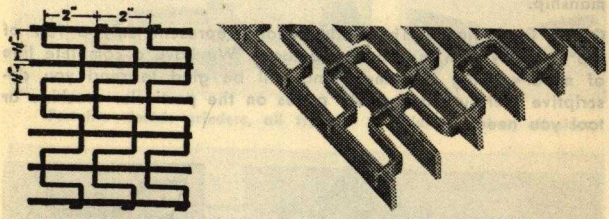
Tri-Lok Rectangular Flooring (1-G-4)

TRI-LOK GRATING AND TREAD

In addition to the rectangular type, Tri-Lok is made in an ornamental design as illustrated with a variety of spacings for main bearing bars and cross bars.



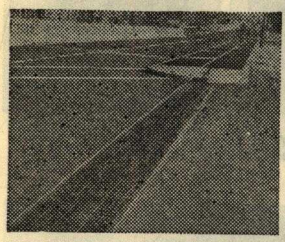
Tri-Lok Diagonal Flooring (1⅛"-D-2")

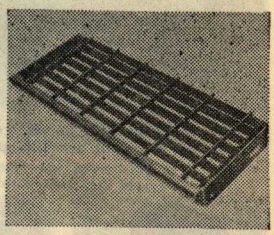


Tri-Lok U Type Flooring (1⅛"-U-2")

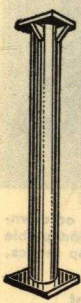
Tri-Lok is also made in U-type design for installation where a small opening is the governing feature. With the standard bearing and cross bar spacing illustrated above an object over ½" square cannot pass through the grating.

TRI-LOK CONCRETE ARMORING AND SAFETY STEPS





Tri-Lok Concrete Armoring (left) and Safety Steps (right) can be furnished to exact specifications. Write for details.



LALLY OR CREX COLUMNS

Steel Cylinder - Concrete Filled

Supporting Columns for Construction Work

Lightweight Columns—3, 3½ and 4" Diam.
Heavyweight Columns—3½ to 12¾" Diam.

Steel caps, bases and brackets can be fabricated to meet all structural requirements.

RYERSON MACHINERY & TOOLS

For Metal Fabrication

Power driven and hand operated equipment for:

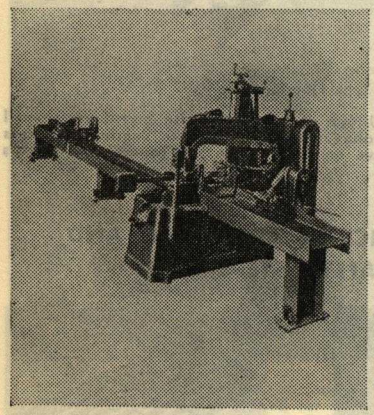
BENDING • BRAKING • DRILLING • FORMING
GRINDING • HOISTING • PRESSING • PUNCHING
ROLLING • SAWING • SHEARING • THREADING

Dependable Machinery Service—The fact that Ryerson has an established reputation for quality and service in the steel business is your assurance of unqualified satisfaction when you also look to us for metal-working machinery and tools.

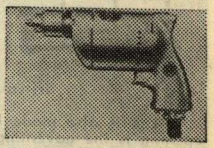
Our own experience with this type of equipment enables us to bring you a select group of job-tested machines and tools with proved performance records.

Then too, we unreservedly guarantee all Ryerson machinery and tools to be as represented and of first class material and workmanship.

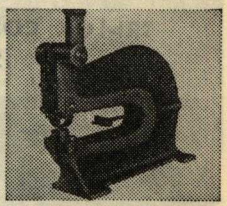
Other Equipment—These illustrations represent only a few of the many Ryerson machines and tools. We have a complete line of metal-working equipment and will be glad to send you descriptive literature and quote prices on the particular machine or tool you need.



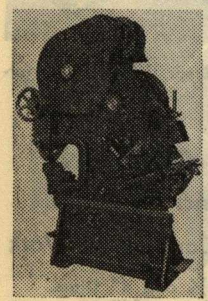
Power hack saws up to 24" capacity, some with automatic bar push-up fixtures



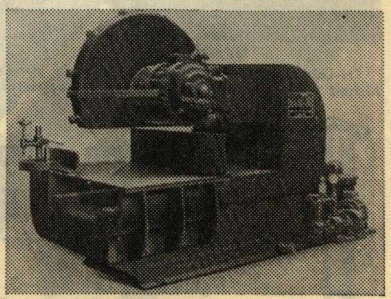
Portable electric drills and screwdrivers



Hand punches and shears, all sizes



Combination Punch & Shears for shearing, punching, coping, etc.

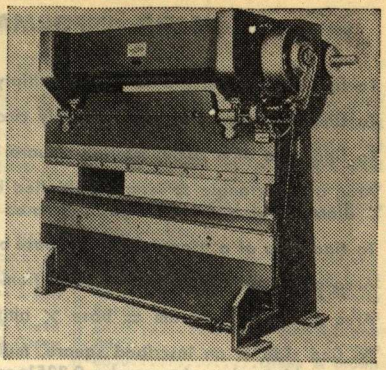


Friction saws with either horizontal or downstroke feed for production cutting, adaptable to hot sawing for mill and forge shop service.

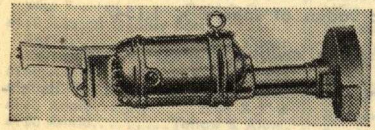
Write for detailed information on this equipment.

RYERSON MACHINERY & TOOLS

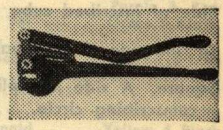
Bench and floor drill presses



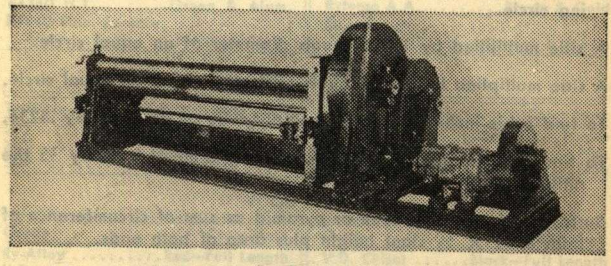
Presses all sizes, forming and press brakes



Portable electric grinders, all types

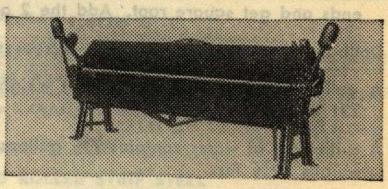


Hand punches, all sizes

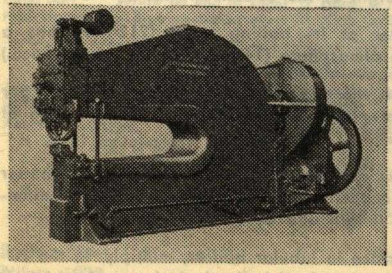


Bending rolls

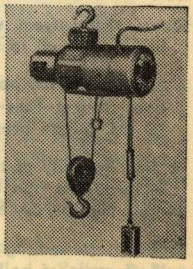
Power, pipe and bolt threaders



Hand and power brakes for sheets and plates



Power punches, all capacities



Electric and hand hoists

Write for detailed information on this equipment.

USEFUL INFORMATION

To find circumference of a circle, multiply diameter by 3.1416.

To find diameter of a circle, multiply circumference by .31831.

To find area of a circle, multiply square of diameter by .7854.

Area of a rectangle = length multiplied by breadth. Doubling the diameter of a circle increases its area four times.

To find area of a triangle, multiply base by ½ perpendicular height.

Area of ellipse = product of both diameters × .7854.

Area of a parallelogram = base × altitude.

To find side of an inscribed square, multiply diameter by 0.7071 or multiply circumference by 0.2251 or divide circumference by 4.4428.

Side of inscribed cube = radius of sphere × 1.1547.

To find side of an equal square, multiply diameter by .8862.

Square. A side multiplied by 1.4142 equals diameter of its circumscribing circle.

A side multiplied by 4.443 equals circumference of its circumscribing circle.

A side multiplied by 1.128 equals diameter of an equal circle.

A side multiplied by 3.547 equals circumference of an equal circle.

To find cubic inches in a ball, multiply cube of diameter by .5236.

To find cubic contents of a cone, multiply area of base by ⅓ the altitude.

Surface of frustrum of cone or pyramid = sum of circumference of both ends × ½ slant height plus area of both ends.

Contents of frustrum of cone or pyramid = multiply area of two ends and get square root. Add the 2 areas and × ⅓ altitude.

Doubling the diameter of a pipe increases its capacity four times.

A gallon of water (U. S. standard) weighs 8⅓ lbs. and contains 231 cubic inches.

A cubic foot of water contains 7½ gallons, 1728 cubic inches, and weighs 62½ lbs.

To find the pressure in pounds per square inch of a column of water, multiply the height of the column in feet by .434.

Steam rising from water at its boiling point (212° F.) has a pressure equal to the atmosphere (14.7 lbs. to the square inch.)

A standard horse power: the evaporation of 30 lbs. of water per hour from a feed water temperature of 100° F. into steam at 70 lbs. gauge pressure.

To find capacity of tanks any size, given dimensions of a cylinder in inches, to find its capacity in U. S. gallons: square the diameter, multiply by the length and by .0034.

To ascertain heating surface in tubular boilers, multiply ⅔ the circumference of boiler by length of boiler in inches and add to it the area of all the tubes.

RYERSON STEEL IDENTIFICATION COLOR MARKS

CARBON STEELS

AISI No.	Color Mark
C1018	Green
C1020	Green
C1020-1025 P. & O. Aircraft Quality Strip	Purple & White
C1035	Blue
C1040	Yellow
C1042	Yellow
C1045	Yellow
C1095	Red & Yellow
B1112	White
B1113	Orange
C1117	Gold
C1137	Gold & Red
C1141	Brown & Gold
C1141 H.T.	Aluminum
Ledloy	Purple

ALLOY STEELS

AISI No.	Color Mark
3140 Annld.	Blue & Red
4130 Aircraft Quality Strip Annld. P. & O.	Purple & Green
Norm. P. & O.	Yellow & Green
4130 Aircraft Quality Bars Annealed	Purple & Green
Normalized	Yellow & Green
Norm. Tempered	Brown & Yellow
Heat Treated	Gold & Green
4140 Aircraft Quality Bars Annld.	Orange & Green
Normalized	Red & Dark Gray
4140 Annld.	Blue & Green
4140 H.T.	Black & White
4145 Annld.	Blue & Pink
4150 Annld.	Yellow & Alum.
4340 Aircraft Quality Bars Annld.	Purple & Blue
E4340 H.T.	Green & Alum.
E4340 Elec. Furnace, Annld.	Purple & Alum.
4615, 4620	Yellow & White
E6150	Pink
8620	Pink & Brown
8642	Black & Orange
8650	Green & Brown
8740 Modified	Blue & Gold
8742	Black & Blue
8750	White & Orange
NCM	Purple & Pink
Nikrome "M"	Green & Alum.
Nitralloy 135 Modified	Brown & Blue
Ryax	Aluminum
Rycase	Gold
Rycrome	Black & White
Rycut, Annld.	Yellow & Black
Rycut, H.T.	Brown & Red
Rytense A.A.	Brown & Gold
Stressproof C.F.	Orange & Brown

STAINLESS STEELS

Type No.	Color Mark
302	Yellow
303	Black
304	Green
304 Ext. Low Carb. Gold	
309	Brown
310	Red
316	Purple
347	Pink
416	Blue

TOOL STEELS

Grade	Color Mark
Ry-Alloy	Red—Full Length
V.D.	Black—Full Length
V.D. Chisel	Black—Full Length

SPECIAL FINISH C. F.

AISI No.—Grade	Color Mark
TG & P C1020	Green, Red Stripe
TG & P C1045	Golden Brown
TG & P C1141	Brown & Gold
Accuracy Ground & Polished B1112	Red
Accuracy Ground & Polished C1040	Yellow
Accuracy Ground & Polished C1141	Brown & Gold

COLD ROLLED STRIP STEEL

Grade	Color Mark
Dead Soft	Yellow on end of sheet
Half Hard	Blue on end of sheet
Hard	Red on end of sheet
High Carbon (see Spring Steel)	Red & Yellow on edge

PLATES—Special Grade

Grade	Color Mark
Abrasion Resisting H—(Full) Hardness	Red & Purple Stripes Full Length
M—(Med.) Hardness	Red 4 Lines Full Length
High Carbon (.40-.50 Carbon)	Yellow on edges
E-Z-Cut	Red & White Stripes
Inland Hi-Steel	Green & White
Inland Cor-Ten	Blue & White

Spring Steel, C.R., Ann'l'd ..... **Red & Yellow on Edges**
Billets 1038 ..... **Yellow & Blue**

DATA
CUTTING EXTRAS
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MECHANICAL PROPERTIES OF STEEL

This table of figures represents AVERAGE results compiled from many tests. It is offered as a general guide to the PROBABLE physical expectancy of the steels listed. IT MUST BE UNDERSTOOD THAT IN INDIVIDUAL TESTS THESE STEELS MAY DEVELOP RESULTS DIFFERING WIDELY FROM THE AVERAGES SHOWN. The average properties shown are based on a 1" Rd. section except for the heat treated steels on which the size range is shown.

The size of the section, rolling temperature, permissible variation within analysis limits and the atmospheric temperature at time of rolling all influence the final physical properties of any steel. The physical properties of cold drawn steel are governed largely by the amount of size reduction during cold drawing. Dependable mechanical properties can be secured only through carefully controlled heat treatment.

AISI No.	Condition of Steel	Tensile Strength psi.	Yield Point psi.	% Elong. in 2"	% Red. of Area	Hardness Bri-nell	Hardness Rock-well	Machinability Rating	Ryerson Color Markings
	Carburizing or Low Carbon Grades								
Low Carbon Steel	Hot Rolled, As Rolled	63,000	46,000	38	62	126	B72	50	Green
	Cold Drawn, As Drawn	77,000	65,000	20	60	156	B83	63	
C1015	Hot Rolled, As Rolled	61,000	45,500	39	61	126	B72	50	Green
	Cold Drawn, As Drawn	74,000	62,000	24	57	143	B79	58	
C1018	Hot Rolled, As Rolled	69,000	48,000	38	62	143	B79	52	
	Cold Drawn, As Drawn	82,000	70,000	20	57	163	B85	65	Green
	Carburized at 1700°F., cooled in box, reheated to 1425°F., water quenched, tempered at 350°F.—Core properties:	92,000	56,000	27	48	197	B91	..	
C1019	Hot Rolled, As Rolled	71,000	51,000	37	60	149	B81	53	Green
	Cold Drawn	84,000	72,000	20	56	170	B87	67	
C1020	Hot Rolled, As Rolled	65,000	43,000	36	59	143	B79	50	Green
	Cold Drawn	78,000	66,000	20	55	156	B83	60	
B1112	Cold Drawn, As Drawn	82,500	71,000	15	43	170	B87	100	White
B1113	Cold Drawn, As Drawn	83,500	72,000	14	40	170	B87	125	Orange
Ledloy	Cold Drawn, As Drawn	79,000	71,000	16	52	163	B86	180	Purple
C1117	Hot Rolled, As Rolled	70,600	44,300	33	63	137	B76	85	Gold
	Cold Drawn, As Drawn	84,000	74,000	21	52	170	B87	90	
Ryerson Rycase	Hot Rolled, As Rolled	70,600	44,300	33	63	137	B76	85	
	Cold Drawn	84,000	74,000	21	52	170	B87	90	Gold
	Carburized at 1700°F., cooled in box, reheated to 1450°F., water quenched, tempered at 350° F.—Core properties:	96,500	59,300	23	53	192	B93	..	
2317	Hot Rolled, As Rolled	85,000	56,000	29	60	163	B85	50	
	Cold Drawn, As Drawn	95,000	75,000	25	58	197	B93	60	
	Carburized at 1700°F., cooled in box, reheated to 1525°F., oil quenched, tempered at 300°F.—Core properties:	137,000	107,000	22	52	285	C30	..	
3115	Hot Rolled, As Rolled	76,000	60,000	32	69	156	B83	60	
	Cold Drawn, As Drawn	87,000	78,300	25	62	163	B85	65	
	Carburized at 1700°F., cooled in box, reheated to 1500°F., oil quenched, tempered at 300°F.—Core properties:	124,000	82,000	22	56	269	C28	..	
4615									Yellow & White
	Hot Rolled, As Rolled	82,000	62,000	28	65	183	B90	58	
	Cold Drawn, As Drawn	99,000	84,600	15	61	207	C15	62	
	Carburized at 1700°F., cooled in box, reheated to 1550°F., oil quenched, tempered at 300°F.—Core properties:	110,000	80,000	25	61	229	C20	..	

(Continued)

MECHANICAL PROPERTIES OF STEEL

AISI No.	Condition of Steel	Tensile Strength psi.	Yield Point psi.	% Elong. in 2"	% Red. of Area	Hardness Brinell	Hardness Rockwell	Machinability Rating	Ryerson Color Markings
(Continued)	Hot Rolled, As Rolled	85,000	63,000	28	64	183	B90	59	
4620	Cold Drawn, As Drawn	101,000	85,000	22	60	207	C15	64	Yellow & White
	Carburized at 1700°F., cooled in box, reheated to 1550°F., oil quenched, tempered at 300°F.—Core properties:	120,000	89,000	22	55	248	24	..	
4815	Hot Rolled, As Rolled	105,000	73,000	24	58	217	C18	50	
	Cold Drawn, As Drawn	110,000	95,000	23	55	223	C19	55	
	Carburized at 1700°F., cooled in box, reheated to 1525°F., oil quenched, tempered at 300°F.—Core properties:	148,000	125,000	18	53	311	C33	..	
8620	Hot Rolled, As Rolled	93,000	65,000	25	63	192	B92	60	
	Cold Drawn, As Drawn	102,000	85,000	22	58	212	C16	63	Pink & Brown
	Carburized at 1700°F., cooled in box, reheated to 1550°F., oil quenched, tempered at 300°F.—Core properties:	119,000	91,000	21	50	262	C27	..	
Hi-Steel (as rolled)	Thickness less than .125"	75,000	60,000	20	..	...	...	..	Green & White
	Thickness .125" to ¾"	75,000	55,000	..	55	...	...	..	
	Medium Carbon or Direct Hardening Steels								
C1035	Hot Rolled, As Rolled	85,000	54,000	30	53	183	B90	65	
	Cold Drawn	92,000	79,000	25	50	201	B94	67	Blue
	Water Quenched 1550°F.—Tempered 1000°F.	103,000	72,000	23	59	201	B94	..	
C1040	Hot Rolled, As Rolled	91,000	58,000	27	50	201	B94	63	
	Cold Drawn	100,000	88,000	17	42	207	C15	65	Yellow
	1" Rd. Water Quenched 1550°F.—Tempered 1000°F.	113,000	86,000	23	62	235	C22	..	
C1042	Hot Rolled, As Rolled	93,000	59,000	26	50	201	B94	61	
	Cold Drawn	102,000	89,000	16	40	207	C15	63	Yellow
	1" Rd. Water Quenched 1550°F.—Tempered 1000°F.	116,000	90,000	22	60	235	C22	..	
C1045	Hot Rolled, As Rolled	98,000	59,000	24	45	212	C16	56	
	Cold Drawn, As Drawn	103,000	90,000	14	40	217	C18	60	Yellow
	Water Quenched 1500°F.—Tempered 1000°F.	120,000	90,000	18	52	240	C22	..	
C1095	Hot Rolled, As Rolled	142,000	83,000	8	18	293	C28	..	
	Water Quenched 1450°F.—Tempered 800°F.	200,000	138,000	12	37	388	C42	..	Red & Yellow
C1137	Hot Rolled, As Rolled	92,000	57,000	27	61	192	B92	70	
	Cold Drawn, As Drawn	105,000	90,000	15	38	207	C15	75	Gold & Red
	Oil Quenched 1550°F.—Tempered 1000°F.	112,000	88,000	21	56	255	C25	..	
C1141	Hot Rolled, As Rolled	97,000	59,000	25	52	201	B94	67	
	Cold Drawn	110,000	93,000	14	40	223	C19	74	Brown & Gold
	1" Rd. Oil Quenched 1550°F.—Tempered 1000°F.	126,000	100,000	19	54	269	C27	..	
Rytense AA	Hot Rolled, As Rolled	97,000	60,000	25	51	Brown & Gold 201	B94	75	
	Cold Drawn	110,000	93,000	14	40	223	C19	78	
	1" Rd. Oil Quenched 1550°F.—Tempered 1000°F.	126,000	100,000	19	54	277	C29	..	

(Continued)

CUTTING EXTRAS

PLANTS OFFICES

MECHANICAL PROPERTIES OF STEEL

AISI No.	Condition of Steel	Tensile Strength psi.	Yield Point psi.	% Elong. in 2"	% Red. of Area	Hardness Bri-nell	Hardness Rock-well	Machin-ability Rating	Ryer-son Color Mark-ings
(Continued)									
2330	Hot Rolled, As Rolled	105,000	68,000	21	50	207	C15	45	
	Cold Drawn, As Drawn	124,000	119,000	12	43	223	C19	55	
	Oil Quenched 1525° F., Tempered 1000° F.	131,000	106,000	20	57	262	C26	..	
3140	Hot Rolled, An'ld.	96,000	64,000	26	56	197	B93	55	
	An'ld and Cold Drawn	104,000	91,300	17	48	212	C16	64	Blue & Red
	Oil Quenched 1550°F.—Tempered 1000°F.	149,000	128,000	16	45	302	C32	..	
3150	Hot Rolled, An'ld.	104,000	73,000	19	50	212	C16	50	
	Oil Quenched 1550°F.—Tempered 1000°F.	155,000	132,000	14	42	311	C33	..	
4130	Hot Rolled, An'ld.	90,000	60,000	30	45	183	B90	65	
	Cold Drawn and An'ld.	98,000	87,000	21	52	201	B94	70	
	1" Rd. Water Quenched 1575°F.—Tempered 1000°F.	146,000	133,000	17	60	293	C31	..	
	.250" Thick Sheet, Water Quenched 1550°F.—Tempered 1000°F.	152,000	138,000	12	..	302	C32	..	
4140	Hot Rolled, An'ld.	90,000	63,000	27	58	187	B91	57	
	An'ld and Cold Drawn	102,000	90,000	18	50	223	C19	66	Blue & Green
	Oil Quenched 1550°F.—Tempered 1000°F.	153,000	131,000	16	45	302	C32	..	
4150	Hot Rolled, An'ld.	100,000	66,000	21	51	197	B93	54	Yellow & Alumi-num
	Oil Quenched 1550°F.—Tempered 1000°F.	158,000	134,000	14	42	311	C33	..	
Rycut	Hot Rolled, An'l'd	102,000	67,000	20	50	212	C16	71	
	An'l'd and Cold Drawn	112,000	94,000	16	44	223	C19	74	Yellow &
	Oil Quenched 1550° F.	160,000	135,000	14	41	311	C34		Black
	Tempered 1000° F.								
4340	Hot Rolled, Anl'd.	101,000	69,000	21	45	207	C15	45	
	An'ld and Cold Drawn	111,000	99,000	16	42	223	C19	55	Purple & Alumi-num
	Oil Quenched 1550°F.—Tempered 1000°F.	182,000	162,000	15	40	363	C39	..	
E52100	Hot Rolled, An'ld.	100,000	81,000	25	57	192	B92	..	
	Oil Quenched 1575°F.—Tempered 300°F.			..	..	...	C63	..	
E6150	Hot Rolled, An'ld.	91,000	58,000	22	53	183	B90	50	
	Oil Quenched 1550°F.—Tempered 1000°F.	155,000	132,000	15	44	302	C32	..	Pink
8640	Hot Rolled, An'ld.	92,000	61,000	27	57	192	B92	57	
	Oil Quenched 1550°F.—Tempered 1000°F.	148,000	127,000	15	42	302	C32	..	
8642	Hot Rolled, An'ld.	93,000	63,000	27	57	192	B92	56	
	An'ld and Cold Drawn	105,000	90,000	18	49	223	C19	66	Black & Orange
	Oil Quenched 1550°F.—Tempered 1000°F.	149,000	128,000	16	45	302	C32	..	
8650	Hot Rolled, Annealed	99,000	58,000	20	48	197	B93	54	Green & Brown
	Oil Quenched 1550°F.—Tempered 1000°F.	155,000	132,000	14	42	311	C33	..	
9255	Hot Rolled, Annealed	115,000	78,000	22	45	Pink & White 223	C20	42	
	Oil Quenched 1625°F.—Tempered 1000°F.	180,000	160,000	15	32	352	C36	..	

MECHANICAL PROPERTIES OF HEAT TREATED STEELS

Condition of Steel	Tensile Strength psi.	Yield Point psi.	% Elong. in 2"	% Red. of Area	Hardness Brinell	Hardness Rockwell	Machinability Rating	Ryerson Color Markings
Stressproof								
Cold Drawn								
3/8" to 2"	125,000	100,000	10	35	269*	C27*	76	Orange & Brown
Over 2" to 3 1/4"	120,000	90,000	10	30	248*	C24*	76	
Ry-Ax								
Hot Rolled								
3 3/4" & Under	100,000	70,000	16	45	217/262	C18/C26	60	Aluminum
Over 3 3/4"	100,000	60,000	16	40	217/262	C18/C26	60	
Rycrome								
Hot Rolled & Cold Finished								
2 1/2" & Under	125,000	105,000	16	50	269/321	C27/C34	55	Black & White
Over 2 1/2" to 4"	115,000	95,000	16	50	255/321	C25/C34	55	
Over 4" Rd.	110,000	85,000	16	45	248/321	C24/C34	55	
Rycut								
Hot Rolled								
2 1/2" & Under	140,000	120,000	15	50	297/341	C32/C37	62	Brown & Red
Over 2 1/2" to 4"	135,000	110,000	15	45	277/341	C29/C37	62	
Over 4" to 6"	125,000	100,000	15	40	269/341	C28/C37	62	
Over 6" to 8"	120,000	95,000	15	40	255/341	C25/C37	62	
Over 8" to 9" incl.	115,000	85,000	15	40	255/341	C25/C37	62	
Nikrome "M"								
Hot Rolled								
4 1/2" to 8"	110,000	90,000	16	47	241/293	C23/C31	57	Green & Aluminum
Nitralloy 135 Modified								
Hot Rolled								
All Sizes	110,000	85,000	18	50	223/263	C19/C27	50	Brown & Blue

*Indicates Average Hardness for these Steels.

MECHANICAL PROPERTIES IN RELATION TO HARDNESS

Hardness Rockwell	Hardness Brinell	Tensile Strength P.S.I.	Yield Point P.S.I.	% Elong. in 2"	% Red. of Area
14	197	93,000/103,000	69,000/ 78,000	22/28	60/68
16	207	98,000/108,000	73,000/ 84,000	21.5/27.5	59/67
18	217	103,000/114,000	76,000/ 90,000	21/27.5	58/66
20	223	106,000/117,000	79,000/ 93,000	20.5/26.3	57.5/65.5
22	235	112,000/124,000	85,000/ 99,000	20/25.5	56.5/64.5
24	248	118,000/131,000	92,000/107,000	19.5/24.5	55/63
26	262	124,000/138,000	99,000/114,000	18.5/24	54/61.5
28	277	131,000/146,000	107,000/122,000	18/22.5	52/60
30	293	138,000/154,000	116,000/131,000	17/22	51/59
32	311	146,000/164,000	125,000/141,000	16/20.5	49/57
34	321	151,000/170,000	131,000/146,000	15.5/20	48/56
36	341	160,000/180,000	141,000/157,000	14.5/18.5	46/54
38	363	171,000/193,000	153,000/170,000	13.5/17	43.5/51.5
40	379	178,000/201,000	163,000/179,000	12.5/16	42/50
42	401	188,000/222,000	176,000/185,000	11/15	40/49

These approximate relationships are based on hardness and apply only to fully quenched, or fully quenched and tempered steels. This table will be more accurate for alloys of .30 carbon or higher, because steels with less than .30 carbon usually have yield point values lower than those shown.

CUTTING EXTRAS

PLANTS OFFICES

AISI & SAE STANDARD STEEL COMPOSITIONS

FOR BARS

Revised May, 1949

CODE FOR PREFIXES:

B is acid bessemer carbon steel. D is acid open-hearth carbon steel.
C is basic open-hearth carbon steel. E is electric furnace steel.

*Basic Open-Hearth and Acid Bessemer Carbon Steels

AISI No.	C	Mn	P Max.	S Max.	SAE No.
C1008	0.10 Max.	0.25-0.50	0.040	0.050	1008
C1010	0.08-0.13	0.30-0.60	0.040	0.050	1010
C1012	0.10-0.15	0.30-0.60	0.040	0.050	....
C1015	0.13-0.18	0.30-0.60	0.040	0.050	1015
C1016	0.13-0.18	0.60-0.90	0.040	0.050	1016
C1017	0.15-0.20	0.30-0.60	0.040	0.050	1017
C1018	0.15-0.20	0.60-0.90	0.040	0.050	1018
C1019	0.15-0.20	0.70-1.00	0.040	0.050	1019
C1020	0.18-0.23	0.30-0.60	0.040	0.050	1020
C1021	0.18-0.23	0.60-0.90	0.040	0.050	....
C1022	0.18-0.23	0.70-1.00	0.040	0.050	1022
C1023	0.20-0.25	0.30-0.60	0.040	0.050	....
C1024	0.19-0.25	1.35-1.65	0.040	0.050	1024
C1025	0.22-0.28	0.30-0.60	0.040	0.050	1025
C1026	0.22-0.28	0.60-0.90	0.040	0.050	....
C1027	0.22-0.29	1.20-1.50	0.040	0.050	1027
C1029	0.25-0.31	0.60-0.90	0.040	0.050	....
C1030	0.28-0.34	0.60-0.90	0.040	0.050	1030
C1033	0.30-0.36	0.70-1.00	0.040	0.050	1033
C1035	0.32-0.38	0.60-0.90	0.040	0.050	1035
C1036	0.30-0.37	1.20-1.50	0.040	0.050	1036
C1037	0.35-0.42	0.40-0.70	0.040	0.050	....
C1038	0.35-0.42	0.60-0.90	0.040	0.050	1038
C1039	0.37-0.44	0.70-1.00	0.040	0.050	1039
C1040	0.37-0.44	0.60-0.90	0.040	0.050	1040
C1041	0.36-0.44	1.35-1.65	0.040	0.050	1041
C1042	0.40-0.47	0.60-0.90	0.040	0.050	1042
C1043	0.40-0.47	0.70-1.00	0.040	0.050	1043
C1045	0.43-0.50	0.60-0.90	0.040	0.050	1045
C1046	0.43-0.50	0.70-1.00	0.040	0.050	1046
C1049	0.46-0.53	0.60-0.90	0.040	0.050	1049
C1050	0.48-0.55	0.60-0.90	0.040	0.050	1050
C1052	0.47-0.55	1.20-1.50	0.040	0.050	1052
C1053	0.48-0.55	0.70-1.00	0.040	0.050	....
C1055	0.50-0.60	0.60-0.90	0.040	0.050	1055
C1060	0.55-0.65	0.60-0.90	0.040	0.050	1060
C1065	0.60-0.70	0.60-0.90	0.040	0.050	1065
C1069	0.65-0.75	0.40-0.70	0.040	0.050	....
C1070	0.65-0.75	0.60-0.90	0.040	0.050	1070
C1072	0.65-0.76	1.00-1.30	0.040	0.050	....
C1075	0.70-0.80	0.40-0.70	0.040	0.050	....
C1078	0.72-0.85	0.30-0.60	0.040	0.050	1078
C1080	0.75-0.88	0.60-0.90	0.040	0.050	1080
C1084	0.80-0.93	0.60-0.90	0.040	0.050	....
C1085	0.80-0.93	0.70-1.00	0.040	0.050	1085
C1086	0.82-0.95	0.30-0.50	0.040	0.050	1086

(Continued)

*For Silicon and Copper content for these steels, see note at bottom of continued table on top of following page.

AISI & SAE STANDARD STEEL COMPOSITIONS

FOR BARS

Basic Open-Hearth and Acid Bessemer Carbon Steels

AISI No.	C	Mn	P Max.	S Max.	SAE No.
(Cont'd)					
C1090	0.85-0.98	0.60-0.90	0.040	0.050	1090
C1095	0.90-1.03	0.30-0.50	0.040	0.050	1095
B1010	0.13 Max.	0.30-0.60	0.07-0.12	0.060	....

Silicon. When Silicon is required, the following ranges and limits are commonly used for basic open-hearth steel grades:

Standard Steel Designations	*Silicon Ranges or Limits*
Up to C1015 Excl.	0.10 Max.
C1015 to C1025 Incl.	0.10 Max., 0.10/0.20, or 0.15/0.30
Over C1025	0.10/0.20, or 0.15/0.30

Copper. When required, copper is specified as an added element to a standard steel.

Basic Open-Hearth Resulphurized Carbon Steels

C1108	0.08-0.13	0.50-0.80	0.040	0.08-0.13	....
C1109	0.08-0.13	0.60-0.90	0.040	0.08-0.13	1109
C1110	0.08-0.13	0.30-0.60	0.040	0.08-0.13	....
C1113	0.10-0.16	1.00-1.30	0.040	0.24-0.33	....
C1115	0.13-0.18	0.60-0.90	0.040	0.08-0.13	1115
C1116	0.14-0.20	1.10-1.40	0.040	0.16-0.23	1116
C1117	0.14-0.20	1.00-1.30	0.040	0.08-0.13	1117
C1118	0.14-0.20	1.30-1.60	0.040	0.08-0.13	1118
C1119	0.14-0.20	1.00-1.30	0.040	0.24-0.33	1119
C1120	0.18-0.23	0.70-1.00	0.040	0.08-0.13	1120
C1125	0.22-0.28	0.60-0.90	0.040	0.08-0.13	....
C1132	0.27-0.34	1.35-1.65	0.040	0.08-0.13	1132
C1137	0.32-0.39	1.35-1.65	0.040	0.08-0.13	1137
C1138	0.34-0.40	0.70-1.00	0.040	0.08-0.13	1138
C1140	0.37-0.44	0.70-1.00	0.040	0.08-0.13	1140
C1141	0.37-0.45	1.35-1.65	0.040	0.08-0.13	1141
C1144	0.40-0.48	1.35-1.65	0.040	0.24-0.33	1144
C1145	0.42-0.49	0.70-1.00	0.040	0.04-0.07	1145
C1146	0.42-0.49	0.70-1.00	0.040	0.08-0.13	1146
C1148	0.45-0.52	0.70-1.00	0.040	0.04-0.07	....
C1151	0.48-0.55	0.70-1.00	0.040	0.08-0.13	1151

Silicon. When Silicon is required, the following ranges and limits are commonly used for basic open hearth steel grades:

Standard Steel Designations	*Silicon Ranges or Limits*
Up to C1113 Excl.	0.10 Max.
C1113 and Over	0.10 Max., 0.10/0.20, or 0.15/0.30

Acid Bessemer Resulphurized Carbon Steels

B1111	0.13 Max.	0.60-0.90	0.07-0.12	0.08-0.15	1111
B1112	0.13 Max.	0.70-1.00	0.07-0.12	0.16-0.23	1112
B1113	0.13 Max.	0.70-1.00	0.07-0.12	0.24-0.33	1113

Acid bessemer steels (B series) are not furnished with specified silicon content.

Open-Hearth and Electric Furnace Alloy Steels

(See Next Two Pages)

CUTTING EXTRAS

PLANTS OFFICES

AISI & SAE STANDARD STEEL COMPOSITIONS

FOR BARS

Open-Hearth and Electric Furnace Alloy Steels

AISI No.	C	Mn	P Max.*	S Max.*	Si*	Ni	Cr	Mo	SAE No
1320	.18-0.23	1.60-1.90	0.040	0.040	.20-0.35	.....	.....	.....	1320
1321	.17-0.22	1.80-2.10	0.050	0.050	.20-0.35	.....	.....	.....	.....
1330	.28-0.33	1.60-1.90	0.040	0.040	.20-0.35	.....	.....	.....	1330
1335	.33-0.38	1.60-1.90	0.040	0.040	.20-0.35	.....	.....	.....	1335
1340	.38-0.43	1.60-1.90	0.040	0.040	.20-0.35	.....	.....	.....	1340
2317	.15-0.20	0.40-0.60	0.040	0.040	.20-0.35	3.25-3.75	.....	.....	2317
2330	.28-0.33	0.60-0.80	0.040	0.040	.20-0.35	3.25-3.75	.....	.....	2330
2335	.33-0.38	0.60-0.80	0.040	0.040	.20-0.35	3.25-3.75	.....	.....	.....
2340	.38-0.43	0.70-0.90	0.040	0.040	.20-0.35	3.25-3.75	.....	.....	2340
2345	.43-0.48	0.70-0.90	0.040	0.040	.20-0.35	3.25-3.75	.....	.....	2345
†E2512	.09-0.14	0.45-0.60	0.025	0.025	.20-0.35	4.75-5.25	.....	.....	2512
2515	.12-0.17	0.40-0.60	0.040	0.040	.20-0.35	4.75-5.25	.....	.....	2515
†E2517	.15-0.20	0.45-0.60	0.025	0.025	.20-0.35	4.75-5.25	.....	.....	2517
3115	.13-0.18	0.40-0.60	0.040	0.040	.20-0.35	1.10-1.40	0.55-0.75	.....	3115
3120	.17-0.22	0.60-0.80	0.040	0.040	.20-0.35	1.10-1.40	0.55-0.75	.....	3120
3130	.28-0.33	0.60-0.80	0.040	0.040	.20-0.35	1.10-1.40	0.55-0.75	.....	3130
3135	.33-0.38	0.60-0.80	0.040	0.040	.20-0.35	1.10-1.40	0.55-0.75	.....	3135
3140	.38-0.43	0.70-0.90	0.040	0.040	.20-0.35	1.10-1.40	0.55-0.75	.....	3140
3141	.38-0.43	0.70-0.90	0.040	0.040	.20-0.35	1.10-1.40	0.70-0.90	.....	3141
3145	.43-0.48	0.70-0.90	0.040	0.040	.20-0.35	1.10-1.40	0.70-0.90	.....	3145
3150	.48-0.53	0.70-0.90	0.040	0.040	.20-0.35	1.10-1.40	0.70-0.90	.....	3150
†E3310	.08-0.13	0.45-0.60	0.025	0.025	.20-0.35	3.25-3.75	1.40-1.75	.....	3310
†E3316	.14-0.19	0.45-0.60	0.025	0.025	.20-0.35	3.25-3.75	1.40-1.75	.....	3316
4017	.15-0.20	0.70-0.90	0.040	0.040	.20-0.35	.....	.....	.20-0.30	4017
4023	.20-0.25	0.70-090	0.040	0.040	.20-0.35	.....	.....	.20-0.30	4023
4024	.20-0.25	0.70-0.90	0.040	(a)	.20-0.35	.....	.....	.20-0.30	4024
4027	.25-0.30	0.70-0.90	0.040	0.040	.20-0.35	.....	.....	.20-0.30	4027
4028	.25-0.30	0.70-0.90	0.040	(a)	.20-0.35	.....	.....	.20-0.30	4028
4032	.30-0.35	0.70-0.90	0.040	0.040	.20-0.35	.....	.....	.20-0.30	4032
4037	.35-0.40	0.70-0.90	0.040	0.040	.20-0.35	.....	.....	.20-0.30	4037
4042	.40-0.45	0.70-0.90	0.040	0.040	.20-0.35	.....	.....	.20-0.30	4042
4047	.45-0.50	0.70-0.90	0.040	0.040	.20-0.35	.....	.....	.20-0.30	4047
4053	.50-0.56	0.75-1.00	0.040	0.040	.20-0.35	.....	.....	.20-0.30	4053
4063	.60-0.67	0.75-1.00	0.040	0.040	.20-0.35	.....	.....	.20-0.30	4063
4068	.63-0.70	0.75-1.00	0.040	0.040	.20-0.35	.....	.....	.20-0.30	4068
4130	.28-0.33	0.40-0.60	0.040	0.040	.20-0.35	.....	0.80-1.10	.15-0.25	4130
‡E4132	.30-0.35	0.40-0.60	0.025	0.025	.20-0.35	.....	0.80-1.10	.18-0.25	.....
‡E4135	.33-0.38	0.70-0.90	0.025	0.025	.20-0.35	.....	0.80-1.10	.18-0.25	.....
4137	.35-0.40	0.70-0.90	0.040	0.040	.20-0.35	.....	0.80-1.10	.15-0.25	4137
4137	.35-0.40	0.70-0.90	0.025	0.025	.20-0.35	.....	0.80-1.10	.18-0.25	.....
4140	.38-0.43	0.75-1.00	0.040	0.040	.20-0.35	.....	0.80-1.10	.15-0.25	4140
4142	.40-0.45	0.75-1.00	0.040	0.040	.20-0.35	.....	0.80-1.10	.15-0.25	.....
4145	.43-0.48	0.75-1.00	0.040	0.040	.20-0.35	.....	0.80-1.10	.15-0.25	4145
4147	.45-0.50	0.75-1.00	0.040	0.040	.20-0.35	.....	0.80-1.10	.15-0.25	.....
4150	.48-0.53	0.75-1.00	0.040	0.040	.20-0.35	.....	0.80-1.10	.15-0.25	4150
4317	.15-0.20	0.45-0.65	0.040	0.040	.20-0.35	1.65-2.00	0.40-0.60	.20-0.30	4317
4320	.17-0.22	0.45-0.65	0.040	0.040	.20-0.35	1.65-2.00	0.40-0.60	.20-0.30	4320
4337	.35-0.40	0.60-0.80	0.040	0.040	.20-0.35	1.65-2.00	0.70-0.90	.20-0.30	.....
4340	.38-0.43	0.60-0.80	0.040	0.040	.20-0.35	1.65-2.00	0.70-0.90	.20-0.30	4340

Cont'd)

*Lowest standard maximum phosphorus or sulphur content for acid open-hearth or acid electric furnace alloy steel is 0.05% each; silicon is 0.15% min.

(a)—Sulphur range: 0.035 to 0.050%.

†For open-hearth steel the manganese is 0.40 to 0.60%.

‡For open-hearth steel the molybdenum is 0.15 to 0.25%.

Phosphorus and Sulphur on Basic open-hearth product shall be .040 Max. Phosphorus and Sulphur on Basic Electric Furnace product shall be .025 Max.

Small quantities of certain elements may be found in alloy and electric furnace carbon steels which are not specified or required. These elements are to be considered as incidental and acceptable to the following maximum amounts: Copper, 0.35%; nickel, 0.25%; chromium, 0.20%; molybdenum, 0.06%.

AISI & SAE STANDARD STEEL COMPOSITIONS

FOR BARS

Open-Hearth and Electric Furnace Alloy Steels

AISI No.	C	Mn	P Max.*	S Max.*	Si*	Ni	Cr	Mo	SAE No.
Cont'd)									
4608	.06-0.11	0.25-0.45	0.040	0.040	.25 Max.	1.40-1.75	.....	.15-0.25	4608
4615	.13-0.18	0.45-0.65	0.040	0.040	.20-0.35	1.65-2.00	.....	.20-0.30	4615
†E4617	.15-0.20	0.45-0.65	0.025	0.025	.20-0.35	1.65-2.00	.....	.20-0.27	4617
4620	.17-0.22	0.45-0.65	0.040	0.040	.20-0.35	1.65-2.00	.....	.20-0.30	4620
X4620	.18-0.23	0.50-0.70	0.040	0.040	.20-0.35	1.65-2.00	.....	.20-0.30	X4620
E4620	.17-0.22	0.45-0.65	0.025	0.025	.20-0.35	1.65-2.00	.....	.20-0.27	.....
4621	.18-0.23	0.70-0.90	0.040	0.040	.20-0.35	1.65-2.00	.....	.20-0.30	4621
4640	.38-0.43	0.60-0.80	0.040	0.040	.20-0.35	1.65-2.00	.....	.20-0.30	4640
E4640	.38-0.43	0.60-0.80	0.025	0.025	.20-0.35	1.65-2.00	.....	.20-0.27	.....
4812	.10-0.15	0.40-0.60	0.040	0.040	.20-0.35	3.25-3.75	.....	.20-0.30	4812
4815	.13-0.18	0.40-0.60	0.040	0.040	.20-0.35	3.25-3.75	.....	.20-0.30	4815
4817	.15-0.20	0.40-0.60	0.040	0.040	.20-0.35	3.25-3.75	.....	.20-0.30	4817
4820	.18-0.23	0.50-0.70	0.040	0.040	.20-0.35	3.25-3.75	.....	.20-0.30	4820
5045	.43-0.48	0.70-0.90	0.040	0.040	.20-0.35	.....	0.55-0.75	.....	5045
5046	.43-0.50	0.75-1.00	0.040	0.040	.20-0.35	.....	0.20-0.35	.....	5046
5120	.17-0.22	0.70-0.90	0.040	0.040	.20-0.35	.....	0.70-0.90	.....	5120
5130	.28-0.33	0.70-0.90	0.040	0.040	.20-0.35	.....	0.80-1.10	.....	5130
5132	.30-0.35	0.60-0.80	0.040	0.040	.20-0.35	.....	0.75-1.00	.....	5132
5135	.33-0.38	0.60-0.80	0.040	0.040	.20-0.35	.....	0.80-1.05	.....	5135
5140	.38-0.43	0.70-0.90	0.040	0.040	.20-0.35	.....	0.70-0.90	.....	5140
5145	.43-0.48	0.70-0.90	0.040	0.040	.20-0.35	.....	0.70-0.90	.....	5145
5147	.45-0.52	0.70-0.95	0.040	0.040	.20-0.35	.....	0.85-1.15	.....	5147
5150	.48-0.53	0.70-0.90	0.040	0.040	.20-0.35	.....	0.70-0.90	.....	5150
5152	.48-0.55	0.70-0.90	0.040	0.040	.20-0.35	.....	0.90-1.20	.....	5152
5160	.55-0.65	0.75-1.00	0.040	0.040	.20-0.35	.....	0.70-0.90	.....	5160
E50100	.95-1.10	0.25-0.45	0.025	0.025	.20-0.35	.....	0.40-0.60	.....	50100
E51100	.95-1.10	0.25-0.45	0.025	0.025	.20-0.35	.....	0.90-1.15	.....	51100
E52100	.95-1.10	0.25-0.45	0.025	0.025	.20-0.35	.....	1.30-1.60	.....	52100
6120	.17-0.22	0.70-0.90	0.040	0.040	.20-0.35	.....	0.70-0.90	.10 min. V	.....
6145	.43-0.48	0.70-0.90	0.040	0.040	.20-0.35	.....	0.80-1.10	.15 min. V	.....
6150	.48-0.53	0.70-0.90	0.040	0.040	.20-0.35	.....	0.80-1.10	.15 min. V	6150
6152	.48-0.55	0.70-0.90	0.040	0.040	.20-0.35	.....	0.80-1.10	.10 min. V	.....
8615	.13-0.18	0.70-0.90	0.040	0.040	.20-0.35	0.40-0.70	0.40-0.60	.15-0.25	8615
8617	.15-0.20	0.70-0.90	0.040	0.040	.20-0.35	0.40-0.70	0.40-0.60	.15-0.25	8617
8620	.18-0.23	0.70-0.90	0.040	0.040	.20-0.35	0.40-0.70	0.40-0.60	.15-0.25	8620
8622	.20-0.25	0.70-0.90	0.040	0.040	.20-0.35	0.40-0.70	0.40-0.60	.15-0.25	8622
8625	.23-0.28	0.70-0.90	0.040	0.040	.20-0.35	0.40-0.70	0.40-0.60	.15-0.25	8625
8627	.25-0.30	0.70-0.90	0.040	0.040	.20-0.35	0.40-0.70	0.40-0.60	.15-0.25	8627
8630	.28-0.33	0.70-0.90	0.040	0.040	.20-0.35	0.40-0.70	0.40-0.60	.15-0.25	8630
8632	.30-0.35	0.70-0.90	0.040	0.040	.20-0.35	0.40-0.70	0.40-0.60	.15-0.25	8632
8635	.33-0.38	0.75-1.00	0.040	0.040	.20-0.35	0.40-0.70	0.40-0.60	.15-0.25	8635
8637	.35-0.40	0.75-1.00	0.040	0.040	.20-0.35	0.40-0.70	0.40-0.60	.15-0.25	8637
8640	.38-0.43	0.75-1.00	0.040	0.040	.20-0.35	0.40-0.70	0.40-0.60	.15-0.25	8640
8641	.38-0.43	0.75-1.00	0.040	.040–.060	.20-0.35	0.40-0.70	0.40-0.60	.15-0.25	8641
8642	.40-0.45	0.75-1.00	0.040	0.040	.20-0.35	0.40-0.70	0.40-0.60	.15-0.25	8642
8645	.43-0.48	0.75-1.00	0.040	0.040	.20-0.35	0.40-0.70	0.40-0.60	.15-0.25	8645
8647	.45-0.50	0.75-1.00	0.040	0.040	.20-0.35	0.40-0.70	0.40-0.60	.15-0.25	8647
8650	.48-0.53	0.75-1.00	0.040	0.040	.20-0.35	0.40-0.70	0.40-0.60	.15-0.25	8650

*Lowest standard maximum phosphorus or sulphur content for acid open-hearth or acid electric furnace alloy steel is 0.05% each; silicon is 0.15% min.

†For open-hearth steel the molybdenum is 0.20 to 0.30%.

Phosphorus and Sulphur on Basic open-hearth product shall be .040 Max. Phosphorus and Sulphur on Basic Electric Furnace product shall be .025 Max.

Small quantities of certain elements may be found in alloy and electric furnace carbon steels which are not specified or required. These elements are to be considered as incidental and acceptable to the following maximum amounts: Copper, 0.35%; nickel, 0.25%; chromium, 0.20%; molybdenum, 0.06%.

AISI & SAE STANDARD STEEL COMPOSITIONS

FOR BARS

Open-Hearth and Electric Furnace Alloy Steels

AISI No.	C	Mn	P	S	Si	Ni	Cr	Mo	SAE No.
(Cont'd)									
8653	.50-0.56	0.75-1.00	0.040	0.040	.20-0.35	0.40-0.70	0.50-0.80	.15-0.25	8653
8655	.50-0.60	0.75-1.00	0.040	0.040	.20-0.35	0.40-0.70	0.40-0.60	.15-0.25	8655
8660	.55-0.65	0.75-1.00	0.040	0.040	.20-0.35	0.40-0.70	0.40-0.60	.15-0.25	8660
8719	.18-0.23	0.60-0.80	0.040	0.040	.20-0.35	0.40-0.70	0.40-0.60	.20-0.30	....
8720	.18-0.23	0.70-0.90	0.040	0.040	.20-0.35	0.40-0.70	0.40-0.60	.20-0.30	8720
8735	.33-0.38	0.75-1.00	0.040	0.040	.20-0.35	0.40-0.70	0.40-0.60	.20-0.30	8735
8740	.38-0.43	0.75-1.00	0.040	0.040	.20-0.35	0.40-0.70	0.40-0.60	.20-0.30	8740
8742	.40-0.45	0.75-1.00	0.040	0.040	.20-0.35	0.40-0.70	0.40-0.60	.20-0.30	....
8745	.43-0.48	0.75-1.00	0.040	0.040	.20-0.35	0.40-0.70	0.40-0.60	.20-0.30	8745
8747	.45-0.50	0.75-1.00	0.040	0.040	.20-0.35	0.40-0.70	0.40-0.60	.20-0.30	....
8750	.48-0.53	0.75-1.00	0.040	0.040	.20-0.35	0.40-0.70	0.40-0.60	.20-0.30	8750
9255	.50-0.60	0.70-0.95	0.040	0.040	1.80-2.2	.....	.....	.....	9255
9260	.55-0.65	0.70-1.00	0.040	0.040	1.80-2.2	.....	.....	.....	9260
9261	.55-0.65	0.75-1.00	0.040	0.040	1.80-2.2	.....	0.10-0.25	.....	9261
9262	.55-0.65	0.75-1.00	0.040	0.040	1.80-2.2	.....	0.25-0.40	.....	9262
E9310	.08-0.13	0.45-0.65	0.025	0.025	.20-0.35	3.00-3.50	1 00-1.40	.08-0.15	9310
E9315	.13-0.18	0.45-0.65	0.025	0.025	.20-0.35	3.00-3.50	1.00-1.40	.08-0.15	9315
E9317	.15-0.20	0.45-0.65	0.025	0.025	.20-0.35	3.00-3.50	1.00-1.40	.08-0.15	9317
9437	.35-0.40	0.90-1.20	0.040	0.040	.20-0.35	0.30-0.60	0.30-0.50	.08-0.15	9437
9440	.38-0.43	0.90-1.20	0.040	0.040	.20-0.35	0.30-0.60	0.30-0.50	.08-0.15	9440
9442	.40-0.45	1.00-1.30	0.040	0.040	.20-0.35	0.30-0.60	0.30-0.50	.08-0.15	9442
9445	.43-0.48	1.00-1.30	0.040	0.040	.20-0.35	0.30-0.60	0.30-0.50	.08-0.15	9445
9747	.45-0.50	0.50-0.80	0.040	0.040	.20-0.35	0.40-0.70	0.10-0.25	.15-0.25	9747
9763	.60-0.67	0.50-0.80	0.040	0.040	.20-0.35	0.40-0.70	0.10-0.25	.15-0.25	9763
9840	.38-0.43	0.70-0.90	0.040	0.040	.20-0.35	0.85-1.15	0.70-0.90	.20-0.30	9840
9845	.43-0.48	0.70-0.90	0.040	0.040	.20-0.35	0.85-1.15	0.70-0.90	.20-0.30	9845
9850	.48-0.53	0.70-0.90	0.040	0.040	.20-0.35	0.85-1.15	0.70-0.90	.20-0.30	9850

Note: All grades on pages 208, 209, and 210 with prefix letter E are manufactured by the basic electric furnace process. All others are normally manufactured by the basic open-hearth process but may be manufactured by the basic electric furnace process with adjustment in phosphorus and sulphur.

Data on Alloy Physicals

A Ryerson alloy steel report sheet is furnished with each shipment of annealed and as rolled alloy steel from stock. The report includes: a positive identification of the steel you receive, its chemical analysis as reported by the mill, the recommended working temperatures, and a chart of its hardenability response which enables you to determine obtainable physical properties before heat treating. All of this information is designed to make it easier for you to buy alloy steel on the basis of what the steel will do rather than an analysis alone. Take advantage of this helpful alloy steel service the next time you purchase from stock.

Save Time and Money by Using Ryerson Flame Cutting Service

Our completely modern flame cutting equipment, plus ample stocks, enables us to quickly and accurately cut steel plates to any irregular shape in any thickness or quality. Write for bulletin describing the service in detail, or send sketch or blue print for quotation.

WEIGHT OF ROUND STEEL BARS

Size in Inches	Wt. per Ft. Lbs.	Wt. of 12′ Bar	Wt. of 16′ Bar	Wt. of 18′ Bar	Wt. of 20′ Bar	Size in Inches	Wt. per Ft. Lbs.	Wt. of 12′ Bar	Wt. of 16′ Bar	Wt. of 18′ Bar	Wt. of 20′ Bar
1/16	.010	0.120	0.16	0.180	0.200	2 1/4	13.52	162.24	216.32	243.36	270.4
5/64	.016	0.192	0.256	0.288	0.320	2 5/16	14.28	171.36	228.48	257.04	285.6
3/32	.023	0.276	0 368	0.414	0.460	2 3/8	15.06	180.72	240.96	271.08	301.2
7/64	.032	0.384	0.512	0.576	0.640	2 7/16	15.87	190.44	253.92	285.66	317.4
1/8	.042	0.504	0.672	0.756	0.840	2 1/2	16.69	200.28	267.04	300.42	333.8
9/64	.053	0.636	0.848	0.954	1.06.	2 9/16	17.53	210.36	280.48	315.54	350.6
5/32	.065	0.780	1.04	1.17	1.30	2 5/8	18.40	220.80	294.40	331.20	368.0
11/64	.079	0.948	1.26	1.42	1.58	2 11/16	19.29	231.48	308.64	347.22	385.8
3/16	.094	1.13	1.50	1.69	1.88	2 3/4	20.19	242.28	323.04	363.42	403.8
13/64	.110	1.32	1.76	1.98	2.20	2 13/16	21.12	253.44	337.92	380.16	422.4
7/32	.128	1.54	2.05	2.30	2.56	2 7/8	22.07	264.84	353.12	397.26	441.4
15/64	.147	1.76	2.35	2.65	2.94	2 15/16	23.04	276.48	368.64	414.72	460.8
1/4	.167	2.00	2.67	3.01	3.34	3	24.03	288.36	384.48	432.54	480.6
17/64	.188	2.26	3.01	3.38	3.76	3 1/16	25.05	300.60	400.80	450.90	501.0
9/32	.211	2.53	3.38	3.80	4.22	3 1/8	26.08	312.96	417.28	469.44	521.6
19/64	.235	2.82	3 76	4.23	4.70	3 3/16	27.13	325.56	434.08	488.34	542.6
5/16	.261	3.13	4.18	4.70	5.22	3 1/4	28.21	338.52	451.36	507.78	564.2
21/64	.288	3.46	4.61	5.18	5.76	3 5/16	29.30	351.60	468.80	527.40	586.0
11/32	.316	3.79	5.06	5.69	6.32	3 3/8	30.42	365.04	486.72	547.56	608.4
23/64	.345	4.14	5 52	6.21	6.90	3 7/16	31.55	378.60	504.80	567.90	631.0
3/8	.376	4.51	6.02	6.77	7.52	3 1/2	32.71	392.52	523.36	588.78	654.2
25/64	.408	4.90	6.53	7.34	8.16	3 9/16	33.89	406.68	542.24	610.02	677.8
13/32	.441	5.29	7.06	7.94	8.82	3 5/8	35.09	421.08	561.44	631.62	701.8
27/64	.475	5.70	7.60	8.55	9.50	3 11/16	36.31	435.72	580.96	653.58	726.2
7/16	.511	6.13	8.18	9.20	10.22	3 3/4	37.55	450.60	600.80	675.90	751.0
29/64	.548	6.58	8.77	9.86	10.96	3 13/16	38.81	465.72	620.96	698.58	776.2
15/32	.587	7.04	9.39	10.57	11.74	3 7/8	40.10	481.20	641.60	721.80	802.0
31/64	.627	7.52	10.03	11.29	12.54	3 15/16	41.40	496.80	662.40	745.20	828.0
1/2	.668	8.02	10.69	12.02	13.36	4	42.73	512.76	683.68	769.14	854.6
33/64	.710	8.52	11.36	12.78	14.20	4 1/16	44.07	528.84	705.12	793.26	881.4
17/32	.754	9.05	12.06	13.57	15.08	4 1/8	45.44	545.28	727.04	817.92	908.8
35/64	.799	9.59	12.78	14.38	15.98	4 3/16	46.83	561.96	749.28	842.94	936.6
9/16	.845	10.14	13.52	15.21	16.90	4 1/4	48.23	578.76	771.68	868.14	964.6
37/64	.893	10.72	14.29	16.07	17.86	4 5/16	49.66	595.92	794.56	893.88	993.2
19/32	.941	11.29	15.06	16.94	18.82	4 3/8	51.11	613.32	817.76	919.98	1022.2
39/64	.992	11.90	15.87	17.86	19.84	4 7/16	52.58	630.96	841.28	946.44	1051.6
5/8	1.04	12.48	16.64	18.72	20.80	4 1/2	54.08	648.96	865.28	973.44	1081.6
41/64	1.10	13.20	17.60	19.80	22.00	4 9/16	55.59	667.08	889.44	1000.62	1111.8
21/32	1.15	13.80	18.40	20.70	23.00	4 5/8	57.12	685.44	913.92	1028.16	1142.4
11/16	1.26	15.12	20.16	22.68	25.20	4 11/16	58.68	704.16	938.88	1056.24	1173.6
43/64	1.38	16.56	22.08	24.84	27.60	4 3/4	60.25	723.00	964.00	1084.50	1205.0
47/64	1.44	17.28	23.04	25.92	28.80	4 7/8	63.46	761.52	1015.36	1142.28	1269.2
3/4	1.50	18.00	24.00	27.00	30.00	4 15/16	65.10	781.20	1041.60	1171.80	1302.0
49/64	1.57	18.84	25.12	28.26	31.40	5	66.76	801.12	1068.16	1201.68	1335.2
25/32	1.63	19.56	26.08	29.34	32.60	5 1/16	70.14	841.68	1122.24	1262.52	1402.8
13/16	1.76	21.12	28.16	31.68	35.2	5 1/4	73.60	883.20	1177.60	1324.80	1472.0
27/32	1.90	22.80	30.40	34.20	38.0	5 5/16	75.36	904.32	1205.76	1356.48	1507.2
7/8	2.04	24.48	32.64	36.72	40.8	5 3/8	77.15	925.80	1234.40	1388.70	1543.0
29/32	2.19	26.28	35.04	39.42	43.8	5 7/16	78.95	947.40	1263.20	1421.10	1579.0
15/16	2.35	28.20	37.60	42.30	47.0	5 1/2	80.78	969.36	1292.48	1454.04	1615.6
31/32	2.51	30.12	40.16	45.18	50.2	5 9/16	84.49	1013.88	1351.84	1520.82	1689.8
1	2.67	32.04	42.72	48.06	53.4	5 3/4	88.29	1059.48	1412.64	1589.22	1765.8
1 1/32	2.84	34.08	45.44	51.12	56.8	5 7/8	92.17	1106.04	1474.72	1659.06	1843.4
1 1/16	3.01	36.12	48.16	54.18	60.2	5 15/16	94.14	1129.68	1506.24	1694.52	1882.8
1 1/8	3.38	40.56	54.08	60.84	67.6	6	96.13	1153.56	1538.08	1730.34	1922.6
1 3/16	3.77	45.24	60.32	67.86	75.4	6 1/4	104.31	1251.72	1668.96	1877.58	2086.2
1 1/4	4.17	50.04	66.72	75.06	83.4	6 1/2	112.82	1353.84	1805.12	2030.76	2256.4
1 5/16	4.60	55.20	73.60	82.80	92.0	6 3/4	121.67	1460.04	1946.72	2190.06	2433.4
1 3/8	5.05	60.60	80.80	90.90	101.0	7	130.85	1570.20	2093.60	2355.30	2617.0
1 7/16	5.52	66.24	88.32	99.36	110.4	7 1/4	140.36	1684.32	2245.76	2526.48	2807.2
1 1/2	6.01	72.12	96.16	108.18	120.2	7 1/2	150.21	1802.52	2403.36	2703.78	3004.2
1 9/16	6.52	78.24	104.32	117.36	130.4	7 3/4	160.39	1924.68	2566.24	2887.02	3207.8
1 5/8	7.05	84.60	112.80	126.90	141.0	8	170.90	2050.80	2734.40	3076.20	3418.0
1 11/16	7.60	91.20	121.60	136.80	152.0	8 1/2	192.93	2315.16	3086.88	3472.74	3858.6
1 3/4	8.18	98.16	130.88	147.24	163.6	9	216.30	2595.60	3460.80	3893.40	4326.0
1 13/16	8.77	105.24	140.32	157.86	175.4	9 1/2	241.00	2892.00	3856.00	4338.00	4820.0
1 7/8	9.39	112.68	150.24	169.02	187.8	10	267.04	3204.48	4272.64	4806.72	5340.8
1 15/16	10.02	120.24	160.32	180.36	200.4	10 1/2	294.41	3532.92	4710.56	5299.38	5888.2
2	10.68	128.16	170.88	192.24	213.6	11	323.11	3877.32	5169.76	5815.98	6462.2
2 1/16	11.36	136.32	181.76	204.48	227.2	11 1/2	353.15	4237.80	5650.40	6356.70	7063.0
2 1/8	12.06	144.72	192.96	217.08	241.2	12	384.53	4614.36	6152.48	6921.54	7690.6
2 3/16	12.78	153.36	204.48	230.04	255.6	13	451.29	5415.48	7220.64	8123.22	9025.8

CUTTING EXTRAS

PLANTS OFFICES

WEIGHT OF SQUARE STEEL BARS

Size in Inches	Wt. per Ft. Lbs.	Wt. of 12' Bar	Wt. of 16' Bar	Wt. of 18' Bar	Wt. of 20' Bar	Size in Inches	Wt. per Ft. Lbs.	Wt. of 12' Bar	Wt. of 16' Bar	Wt. of 18' Bar	Wt. of 20' Bar
1/16	.053	.64	.85	.954	1.06	1 5/16	8.98	107.76	143.68	161.64	179.60
5/64	.083	1.00	1.33	1.49	1.66	1 11/16	9.68	116.16	154.88	174.24	193.60
3/16	.120	1.44	1.92	2.16	2.40	1 3/4	10.41	124.92	166.56	187.38	208.20
7/64	.163	1.96	2.61	2.93	3.26	1 13/16	11.17	134.04	178.72	201.06	223.40
1/4	.213	2.56	3.41	3.83	4.26	1 7/8	11.95	143.40	191.20	215.10	239.00
9/64	.269	3.23	4.30	4.84	5.38	1 15/16	12.76	153.12	204.16	229.68	255.20
5/16	.332	3.98	5.31	5.98	6.64	2	13.60	163.20	217.60	244.80	272.00
11/64	.402	4.82	6.43	7.24	8.04	2 1/16	14.46	173.52	231.36	260.28	289.20
3/8	.478	5.74	7.65	8.60	9.56	2 1/8	15.35	184.20	245.60	276.30	307.00
13/16	.651	7.81	10.42	11.72	13.02	2 3/16	16.27	195.24	260.32	292.86	325.40
1/2	.850	10.20	13.60	15.30	17.00	2 1/4	17.21	206.52	275.36	309.78	344.20
9/16	1.08	12.96	17.28	19.44	21.60	2 5/16	18.18	218.16	290.88	327.24	363.60
19/64	1.20	14.40	19.20	21.60	24.00	2 3/8	19.18	230.16	306.88	345.24	383.60
5/8	1.33	15.96	21.28	23.94	26.60	2 7/16	20.20	242.40	323.20	363.60	404.00
11/16	1.61	19.32	25.76	28.98	32.20	2 1/2	21.25	255.00	340.00	382.50	425.00
3/4	1.91	22.92	30.56	34.38	38.20	2 9/16	22.33	267.96	357.28	401.94	446.60
13/16	2.24	26.88	35.84	40.32	44.80	2 5/8	23.43	281.16	374.88	421.74	468.60
7/8	2.60	31.20	41.60	46.80	52.00	2 3/4	25.71	308.52	411.36	462.78	514.20
15/16	2.99	35.88	47.84	53.82	59.80	2 7/8	28.10	337.20	449.60	505.80	562.00
1	3.40	40.80	54.40	61.20	68.00	3	30.60	367.20	489.60	550.80	612.00
1 1/16	3.84	46.08	61.44	69.12	76.80	3 1/8	33.20	398.40	531.20	597.60	664.00
1 1/8	4.30	51.60	68.80	77.40	86.00	3 1/4	35.91	430.92	574.56	646.38	718.20
1 3/16	4.80	57.60	76.80	86.40	96.00	3 3/8	38.73	464.76	619.68	697.14	774.60
1 1/4	5.31	63.72	84.96	95.58	106.20	3 1/2	41.65	499.80	666.40	749.70	833.00
1 5/16	5.86	70.32	93.76	105.48	117.20	3 3/4	47.81	573.72	764.96	860.58	956.20
1 3/8	6.43	77.16	102.88	115.74	128.60	4	54.40	652.80	870.40	979.20	1088.00
1 7/16	7.03	84.36	112.48	126.54	140.60	4 1/2	68.85	826.20	1101.60	1239.30	1377.00
1 1/2	7.65	91.80	122.40	137.70	153.00	5	85.00	1020.00	1360.00	1530.00	1700.00
1 9/16	8.30	99.60	132.80	149.40	166.00	6	122.40	1468.80	1958.40	2203.20	2448.00

WEIGHT OF HEXAGON STEEL BARS

Size in Inches	Wt. per Ft. Lbs.	Wt. of 12' Bar	Wt. of 16' Bar	Wt of 20' Bar	Size in Inches	Wt. per Ft. Lbs.	Wt. of 12' Bar	Wt. of 16' Bar	Wt. of 20' Bar
1/16	.046	.55	.74	.92	1 5/8	7.78	93.36	124.48	155.60
5/64	.072	.86	1.15	1.44	1 11/16	8.39	100.68	134.24	167.80
3/16	.104	1.25	1.66	2.08	1 3/4	9.02	108.24	144.32	180.40
7/64	.141	1.69	2.26	2.82	1 13/16	9.67	116.04	154.72	193.40
1/4	.184	2.21	2.94	3.68	1 7/8	10.35	124.20	165.60	207.00
9/64	.233	2.80	3.73	4.66	1 15/16	11.05	132.60	176.80	221.00
5/16	.288	3.46	4.61	5.76	2	11.78	141.36	188.48	235.60
11/64	.348	4.18	5.57	6.96	2 1/16	12.53	150.36	200.48	250.60
3/8	.414	4.97	6.62	8.28	2 1/8	13.30	159.60	212.80	266.00
13/16	.564	6.77	9.02	11.28	2 3/16	14.09	169.08	225.44	281.80
1/2	.736	8.83	11.78	14.72	2 1/4	14.91	178.92	238.56	298.20
9/16	.932	11.18	14.91	18.64	2 5/16	15.75	189.00	252.00	315.00
5/8	1.15	13.80	18.40	23.00	2 3/8	16.61	199.32	265.72	332.20
11/16	1.39	16.68	22.24	27.80	2 7/16	17.49	209.88	279.84	349.80
3/4	1.66	19.92	26.56	33.20	2 1/2	18.40	220.80	294.40	368.00
13/16	1.94	23.28	31.04	38.80	2 9/16	19.34	232.08	309.44	386.80
7/8	2.25	27.00	36.00	45.00	2 5/8	20.29	243.48	324.64	405.80
15/16	2.59	31.08	41.44	51.80	2 3/4	22.27	267.24	356.32	445.40
1	2.94	35.28	47.04	58.80	2 7/8	24.34	292.08	389.44	486.80
1 1/16	3.32	39.84	53.12	66.40	3	26.50	318.00	424.00	530.00
1 1/8	3.73	44.76	59.68	74.60	3 1/8	28.76	345.12	460.16	575.20
1 3/16	4.15	49.80	66.40	83.00	3 1/4	31.10	373.20	497.60	622.00
1 1/4	4.60	55.20	73.60	92.00	3 3/8	33.54	402.48	536.64	670.80
1 5/16	5.07	60.84	81.12	101.40	3 1/2	36.07	432.84	577.12	721.40
1 3/8	5.57	66.84	89.12	111.40	3 3/4	41.41	496.92	662.56	828.20
1 7/16	6.09	73.08	97.44	121.80	4	47.11	565.32	753.76	942.20
1 1/2	6.63	79.56	106.08	132.60	4 1/2	59.63	715.56	954.08	1192.60
1 9/16	7.19	86.28	115.04	143.80					

WEIGHT OF FLAT STEEL BARS

Gauge and Size in Inches	Wt. per ft. lbs.	Wt. of 12′ Bar	Wt. of 16′ Bar	Wt. of 20′ Bar
3/32X				
1/4	0.080	0.96	1.28	1.60
3/8	0.120	1.44	1.92	2.40
1/2	0.159	1.91	2.54	3.18
5/8	0.199	2.39	3.18	3.98
3/4	0.239	2.87	3.82	4.78
7/8	0.279	3.35	4.46	5.58
1	0.319	3.83	5.10	6.38
1 1/4	0.398	4.78	6.37	7.96
1 1/2	0.478	5.74	7.65	9.56
1 3/4	0.558	6.70	8.93	11.16
2	0.638	7.66	10.21	12.76
No. 12X				
3/8	0.139	1.67	2.22	2.78
1/2	0.185	2.22	2.96	3.70
5/8	0.232	2.78	3.71	4.64
3/4	0.278	3.34	4.45	5.56
7/8	0.324	3.89	5.18	6.48
1	0.371	4.45	5.94	7.42
1 1/8	0.417	5.00	6.67	8.34
1 1/4	0.463	5.56	7.41	9.26
1 3/8	0.510	6.12	8.16	10.20
1 1/2	0.556	6.67	8.90	11.12
1 3/4	0.649	7.79	10.38	12.98
2	0.744	8.89	11.86	14.82
2 1/4	0.834	10.01	13.34	16.68
2 1/2	0.927	11.12	14.83	18.54
2 3/4	1.019	12.23	16.30	20.38
3	1.112	13.34	17.79	22.24
3 1/2	1.297	15.56	20.75	25.94
4	1.482	17.78	23.71	29.64
1/8X				
3/16	0.080	0.96	1.28	1.60
1/4	0.106	1.27	1.70	2.12
5/16	0.133	1.60	2.13	2.66
3/8	0.159	1.91	2.54	3.18
1/2	0.213	2.56	3.41	4.26
5/8	0.266	3.19	4.26	5.32
3/4	0.319	3.83	5.10	6.38
7/8	0.372	4.46	5.95	7.44
1	0.425	5.10	6.80	8.50
1 1/8	0.478	5.74	7.65	9.56
1 1/4	0.531	6.37	8.50	10.62
1 3/8	0.584	7.01	9.34	11.68
1 1/2	0.638	7.66	10.21	12.76
1 5/8	0.691	8.29	11.06	13.82
1 3/4	0.744	8.93	11.90	14.88
2	0.850	10.20	13.60	17.00
2 1/4	0.956	11.47	15.30	19.12
2 1/2	1.063	12.76	17.01	21.26
2 3/4	1.169	14.03	18.70	23.38
3	1.275	15.30	20.40	25.50
3 1/4	1.381	16.57	22.10	27.62
3 1/2	1.488	17.86	23.81	29.76
3 3/4	1.594	19.13	25.50	31.88
4	1.700	20.40	27.20	34.00
4 1/2	1.913	22.96	30.61	38.26
5	2.125	25.50	34.00	42.50
5 1/2	2.338	28.06	37.41	46.76
6	2.550	30.60	40.80	51.00
7	2.975	35.70	47.60	59.50
8	3.400	40.80	54.40	68.00
9	3.825	45.90	61.20	76.50
10	4.250	51.00	68.00	85.00
12	5.100	61.20	81.60	102.00
No. 10X				
3/8	0.171	2.05	2.74	3.42
1/2	0.228	2.74	3.65	4.56
5/8	0.285	3.42	4.56	5.70
3/4	0.342	4.10	5.47	6.84
7/8	0.399	4.79	6.38	7.98
1	0.456	5.47	7.30	9.12
1 1/8	0.513	6.16	8.21	10.26
1 1/4	0.570	6.84	9.12	11.40
1 3/8	0.627	7.52	10.03	12.54
1 1/2	0.683	8.20	10.93	13.66
1 3/4	0.797	9.56	12.75	15.94
2	0.911	10.93	14.58	18.22
2 1/4	1.025	12.30	16.40	20.50
2 1/2	1.139	13.67	18.22	22.78
2 3/4	1.253	15.04	20.05	25.06
3	1.367	16.40	21.87	27.34
3 1/4	1.481	17.77	23.70	29.62
3 1/2	1.595	19.14	25.52	31.90
4	1.822	21.86	29.15	36.44
4 1/2	2.050	24.60	32.80	41.00
5	2.278	27.34	36.45	45.56
5 1/2	2.506	30.07	40.10	50.12
6	2.734	32.81	43.74	54.68
7	3.189	38.27	51.02	63.78
8	3.645	43.74	58.32	72.90
9	4.100	49.20	65.60	82.00
5/32X				
1/4	0.133	1.60	2.13	2.66
5/16	0.166	1.99	2.66	3.32
3/8	0.199	2.39	3.18	3.98
3/16X				
1/4	0.159	1.91	2.54	3.18
5/16	0.199	2.39	3.18	3.98
3/8	0.239	2.87	3.82	4.78
7/16	0.279	3.35	4.46	5.58
1/2	0.319	3.83	5.10	6.38
9/16	0.359	4.31	5.74	7.18
5/8	0.398	4.78	6.37	7.96
3/4	0.478	5.74	7.65	9.56
7/8	0.558	6.70	8.93	11.16
1	0.638	7.66	10.21	12.76
1 1/8	0.717	8.60	11.47	14.34
1 1/4	0.797	9.56	12.75	15.94
1 3/8	0.877	10.52	14.03	17.54
1 1/2	0.956	11.47	15.30	19.12
1 3/4	1.116	13.39	17.86	22.32
1 7/8	1.195	14.34	19.12	23.90
2	1.275	15.30	20.40	25.50
2 1/4	1.434	17.21	22.94	28.68
2 1/2	1.594	19.13	25.50	31.88
2 3/4	1.753	21.04	28.05	35.06
3	1.913	22.96	30.61	38.26
3 1/4	2.072	24.86	33.15	41.44
3 1/2	2.231	26.77	35.70	44.62
3 3/4	2.391	28.69	38.26	47.82
4	2.550	30.60	40.80	51.00
4 1/2	2.869	34.43	45.90	57.38
5	3.188	38.26	51.01	63.76
6	3.825	45.90	61.20	76.50
7/32X				
5/16	0.232	2.78	3.71	4.64
3/8	0.279	3.35	4.46	5.58
1/4X				
5/16	0.266	3.19	4.26	5.32
3/8	0.319	3.83	5.10	6.38
7/16	0.372	4.46	5.95	7.44
1/2	0.425	5.10	6.80	8.50

(Continued)

WEIGHT OF FLAT STEEL BARS

(Continued)

Size in Inches	Wt. per Ft. Lbs.	Wt. of 12′ Bar	Wt. of 16′ Bar	Wt. of 20′ Bar
1/4x				
9/16	.478	5.74	7.65	9.56
5/8	.531	6.37	8.50	10.62
11/16	.584	7.01	9.34	11.68
3/4	.638	7.66	10.21	12.76
13/16	.691	8.29	11.06	13.82
7/8	.744	8.93	11.90	14.88
15/16	.797	9.56	12.75	15.94
1	.850	10.20	13.60	17.00
1 1/8	.956	11.47	15.30	19.12
1 1/4	1.063	12.76	17.01	21.26
1 3/8	1.169	14.03	18.70	23.38
1 1/2	1.275	15.30	20.40	25.50
1 5/8	1.381	16.57	22.10	27.62
1 3/4	1.488	17.86	23.81	29.76
1 7/8	1.594	19.13	25.50	31.88
2	1.700	20.40	27.20	34.00
2 1/4	1.913	22.96	30.61	38.26
2 1/2	2.125	25.50	34.00	42.50
2 3/4	2.338	28.06	37.41	46.76
3	2.550	30.60	40.80	51.00
3 1/4	2.763	33.16	44.21	55.26
3 1/2	2.975	35.70	47.60	59.50
3 3/4	3.188	38.26	51.01	63.76
4	3.400	40.80	54.40	68.00
4 1/4	3.613	43.36	57.81	72.26
4 1/2	3.825	45.90	61.20	76.50
5	4.250	51.00	68.00	85.00
5 1/2	4.675	56.10	74.80	93.50
6	5.100	61.20	81.60	102.00
8	6.800	81.60	108.80	136.00
10	8.500	102.00	136.00	170.00
12	10.200	122.40	163.20	204.00
5/16x				
3/8	.398	4.78	6.37	7.96
7/16	.465	5.58	7.44	9.30
1/2	.531	6.37	8.50	10.62
9/16	.598	7.18	9.57	11.96
5/8	.664	7.97	10.62	13.28
11/16	.731	8.77	11.70	14.62
3/4	.797	9.56	12.75	15.94
7/8	.930	11.16	14.88	18.60
1	1.063	12.76	17.01	21.26
1 1/8	1.195	14.34	19.12	23.90
1 1/4	1.328	15.94	21.25	26.56
1 3/8	1.461	17.53	23.38	29.22
1 1/2	1.594	19.13	25.50	31.88
1 3/4	1.859	22.31	29.74	37.18
2	2.125	25.50	34.00	42.50
2 1/8	2.258	27.10	36.13	45.16
2 1/4	2.391	28.69	38.26	47.82
2 1/2	2.656	31.87	42.50	53.12
2 3/4	2.922	35.06	46.75	58.44
3	3.188	38.26	51.01	63.76
3 1/4	3.453	41.44	55.25	69.06
3 1/2	3.719	44.63	59.50	74.38
4	4.250	51.00	68.00	85.00
4 1/2	4.781	57.37	76.50	95.62
5	5.313	63.76	85.01	106.26
6	6.375	76.50	102.00	127.50
8	8.500	102.00	136.00	170.00
10	10.625	127.50	170.00	212.50
12	12.750	153.00	204.00	255.00
3/8x				
7/16	.558	6.70	8.93	11.16

Size in Inches	Wt. per Ft. Lbs.	Wt. of 12′ Bar	Wt. of 16′ Bar	Wt. of 20′ Bar
3/8x				
1/2	.638	7.66	10.21	12.76
9/16	.717	8.60	11.47	14.34
5/8	.797	9.56	12.75	15.94
11/16	.877	10.52	14.03	17.54
3/4	.956	11.47	15.30	19.12
7/8	1.116	13.39	17.86	22.32
1	1.275	15.30	20.40	25.50
1 1/8	1.434	17.21	22.94	28.68
1 1/4	1.594	19.13	25.50	31.88
1 3/8	1.753	21.04	28.05	35.06
1 1/2	1.913	22.96	30.61	38.26
1 5/8	2.072	24.86	33.15	41.44
1 3/4	2.231	26.77	35.70	44.62
1 7/8	2.391	28.69	38.26	47.82
2	2.550	30.60	40.80	51.00
2 1/4	2.869	34.43	45.90	57.38
2 1/2	3.188	38.26	51.01	63.76
2 3/4	3.506	42.07	56.10	70.12
3	3.825	45.90	61.20	76.50
3 1/4	4.144	49.73	66.30	82.88
3 1/2	4.463	53.56	71.41	89.26
3 3/4	4.781	57.37	76.50	95.62
4	5.100	61.20	81.60	102.00
4 1/4	5.419	65.03	86.70	108.38
4 1/2	5.738	68.86	91.81	114.76
5	6.375	76.50	102.00	127.50
5 1/2	7.013	84.16	112.21	140.26
6	7.650	91.80	122.40	153.00
8	10.200	122.40	163.20	204.00
10	12.750	153.00	204.00	255.00
12	15.300	183.60	244.80	306.00
7/16x				
1/2	.744	8.93	11.90	14.88
9/16	.837	10.04	13.39	16.74
5/8	.930	11.16	14.88	18.60
3/4	1.116	13.39	17.86	22.32
7/8	1.302	15.62	20.83	26.04
1	1.488	17.86	23.81	29.76
1 1/8	1.673	20.08	26.77	33.46
1 1/4	1.859	22.31	29.74	37.18
1 1/2	2.231	26.77	35.70	44.62
1 3/4	2.603	31.24	41.65	52.06
2	2.975	35.70	47.60	59.50
2 1/4	3.347	40.16	53.55	66.94
2 1/2	3.719	44.63	59.50	74.38
2 3/4	4.091	49.09	65.46	81.82
3	4.463	53.56	71.41	89.26
3 1/4	4.834	58.01	77.34	96.68
3 1/2	5.206	62.47	83.30	104.12
4	5.950	71.40	95.20	119.00
4 1/2	6.694	80.33	107.10	133.88
5	7.438	89.26	119.01	148.76
6	8.925	107.10	142.80	178.50
1/2x				
9/16	.956	11.47	15.30	19.12
5/8	1.063	12.76	17.01	21.26
11/16	1.169	14.03	18.70	23.38
3/4	1.275	15.30	20.40	25.50
13/16	1.381	16.57	22.10	27.62
7/8	1.488	17.86	23.81	29.76
1	1.700	20.40	27.20	34.00
1 1/8	1.913	22.96	30.61	38.26
1 1/4	2.125	25.50	34.00	42.50

(Continued)

WEIGHT OF FLAT STEEL BARS

(Continued)

Size in Inches	Wt. per Ft. Lbs.	Wt. of 12′ Bar	Wt. of 16′ Bar	Wt. of 20′ Bar
½x				
1⅜	2.338	28.06	37.41	46.76
1½	2.550	30.60	40.80	51.00
1⅝	2.763	33.16	44.21	55.26
1¾	2.975	35.70	47.60	59.50
1⅞	3.188	38.26	51.01	63.76
2	3.400	40.80	54.40	68.00
2¼	3.825	45.90	61.20	76.50
2½	4.250	51.00	68.00	85.00
2¾	4.675	56.10	74.80	93.50
3	5.100	61.20	81.60	102.00
3¼	5.525	66.30	88.40	110.50
3½	5.950	71.40	95.20	119.00
3¾	6.375	76.50	102.00	127.50
4	6.800	81.60	108.80	136.00
4¼	7.225	86.70	115.60	144.50
4½	7.650	91.80	122.40	153.00
4¾	8.075	96.90	129.20	161.50
5	8.500	102.00	136.00	170.00
5¼	8.925	107.10	142.80	178.50
5½	9.350	112.20	149.60	187.00
5¾	9.775	117.30	156.40	195.50
6	10.200	122.40	163.20	204.00
8	13.600	163.20	217.60	272.00
10	17.000	204.00	272.00	340.00
12	20.400	244.80	326.40	408.00
9/16x				
⅝	1.195	14.34	19.12	23.90
¾	1.434	17.21	22.94	28.68
⅞	1.673	20.08	26.77	33.46
1	1.913	22.96	30.61	38.26
1¼	2.391	28.69	38.26	47.82
1½	2.869	34.43	45.90	57.38
1¾	3.347	40.16	53.55	66.94
2	3.825	45.90	61.20	76.50
2½	4.781	57.37	76.50	95.62
3	5.738	68.86	91.81	114.76
⅝x				
11/16	1.461	17.53	23.38	29.22
¾	1.594	19.13	25.50	31.88
13/16	1.727	20.72	27.63	34.54
⅞	1.859	22.31	29.74	37.18
1	2.125	25.50	34.00	42.50
1⅛	2.391	28.69	38.26	47.82
1¼	2.656	31.87	42.50	53.12
1⅜	2.922	35.06	46.75	58.44
1½	3.188	38.26	51.01	63.76
1⅝	3.453	41.44	55.25	69.06
1¾	3.719	44.63	59.50	74.38
1⅞	3.984	47.81	63.74	79.68
2	4.250	51.00	68.00	85.00
2¼	4.781	57.37	76.50	95.62
2½	5.313	63.76	85.01	106.26
2¾	5.844	70.13	93.50	116.88
3	6.375	76.50	102.00	127.50
3¼	6.906	82.87	110.50	138.12
3½	7.438	89.26	119.01	148.76
3¾	7.969	95.63	127.50	159.38
4	8.500	102.00	136.00	170.00
4¼	9.031	108.37	144.50	180.62
4½	9.563	114.76	153.01	191.26
4¾	10.094	121.13	161.50	201.88
5	10.625	127.50	170.00	212.50
5½	11.688	140.26	187.01	233.76

Size in Inches	Wt. per Ft. Lbs.	Wt. of 12′ Bar	Wt. of 16′ Bar	Wt. of 20′ Bar
⅝x				
6	12.750	153.00	204.00	255.00
7	14.875	178.50	238.00	297.50
8	17.000	204.00	272.00	340.00
10	21.250	255.00	340.00	425.00
12	25.500	306.00	408.00	510.00
11/16x				
¾	1.753	21.04	28.05	35.06
13/16	1.899	22.79	30.38	37.98
⅞	2.045	24.54	32.72	40.90
1	2.338	28.06	37.41	46.76
1⅛	2.630	31.56	42.08	52.60
1¼	2.922	35.06	46.75	58.44
1½	3.506	42.07	56.10	70.12
1¾	4.091	49.09	65.46	81.82
2	4.675	56.10	74.80	93.50
¾x				
13/16	2.072	24.86	33.15	41.44
⅞	2.231	26.77	35.70	44.62
1	2.550	30.60	40.80	51.00
1⅛	2.869	34.43	45.90	57.38
1¼	3.188	38.26	51.01	63.76
1⅜	3.506	42.07	56.10	70.12
1½	3.825	45.90	61.20	76.50
1⅝	4.144	49.73	66.30	82.88
1¾	4.463	53.56	71.41	89.26
2	5.100	61.20	81.60	102.00
2¼	5.738	68.86	91.81	114.76
2½	6.375	76.50	102.00	127.50
2¾	7.013	84.16	112.21	140.26
3	7.650	91.80	122.40	153.00
3¼	8.288	99.46	132.61	165.76
3½	8.925	107.10	142.80	178.50
4	10.200	122.40	163.20	204.00
4½	11.475	137.70	183.60	229.50
5	12.750	153.00	204.00	255.00
5½	14.025	168.30	224.40	280.50
6	15.300	183.60	244.80	306.00
8	20.400	244.80	326.40	408.00
10	25.500	306.00	408.00	510.00
12	30.600	367.20	489.60	612.00
⅞x				
1	2.975	35.70	47.60	59.50
1⅛	3.347	40.16	53.55	66.94
1¼	3.719	44.63	59.50	74.38
1⅜	4.091	49.09	65.46	81.82
1½	4.463	53.56	71.41	89.26
1¾	5.206	62.47	83.30	104.12
2	5.950	71.40	95.20	119.00
2¼	6.694	80.33	107.10	133.88
2½	7.438	89.26	119.01	148.76
2¾	8.181	98.17	130.90	163.62
3	8.925	107.10	142.80	178.50
3¼	9.669	116.03	154.70	193.38
3½	10.413	124.96	166.61	208.26
4	11.900	142.80	190.40	238.00
4½	13.388	160.66	214.21	267.76
5	14.875	178.50	238.00	297.50
6	17.850	214.20	285.60	357.00
8	23.800	285.60	380.80	476.00
10	29.750	357.00	476.00	595.00
12	35.700	428.40	571.20	714.00

(Continued)

WEIGHT OF FLAT STEEL BARS

(Continued)

Size in Inches	Wt. per Ft. Lbs	Wt. of 12′ Bar	Wt. of 16′ Bar	Wt. of 20′ Bar
1x				
1 ⅛	3.825	45.90	61.20	76.50
1 ¼	4.250	51.00	68.00	85.00
1 ⅜	4.675	56.10	74.80	93.50
1 ½	5.100	61.20	81.60	102.00
1 ⅝	5.525	66.30	88.40	110.50
1 ¾	5.950	71.40	95.20	119.00
2	6.800	81.60	108.80	136.00
2 ¼	7.650	91.80	122.40	153.00
2 ½	8.500	102.00	136.00	170.00
2 ¾	9.350	112.20	149.60	187.00
3	10.200	122.40	163.20	204.00
3 ¼	11.050	132.60	176.80	221.00
3 ½	11.900	142.80	190.40	238.00
3 ¾	12.750	153.00	204.00	255.00
4	13.600	163.20	217.60	272.00
4 ½	15.300	183.60	244.80	306.00
5	17.000	204.00	272.00	340.00
5 ½	18.700	224.40	299.20	374.00
6	20.400	244.80	326.40	408.00
8	27.200	326.40	435.20	544.00
10	34.000	408.00	544.00	680.00
12	40.800	489.60	652.80	816.00
1⅛x				
1 ¼	4.781	57.37	76.50	95.62
1 ⅜	5.259	63.11	84.14	105.18
1 ½	5.738	68.86	91.81	114.76
1 ⅝	6.216	74.59	99.46	124.32
1 ¾	6.694	80.33	107.10	133.88
2	7.650	91.80	122.40	153.00
2 ¼	8.606	103.27	137.70	172.12
2 ½	9.563	114.76	153.01	191.26
3	11.475	137.70	183.60	229.50
4	15.300	183.60	244.80	306.00
1¼x				
1 ⅜	5.844	70.13	93.50	116.88
1 ½	6.375	76.50	102.00	127.50
1 ⅝	6.906	82.87	110.50	138.12
1 ¾	7.438	89.26	119.01	148.76
1 ⅞	7.969	95.63	127.50	159.38
2	8.500	102.00	136.00	170.00
2 ¼	9.563	114.76	153.01	191.26
2 ½	10.625	127.50	170.00	212.50
2 ¾	11.688	140.26	187.01	233.76
3	12.750	153.00	204.00	255.00
3 ¼	13.813	165.76	221.01	276.26
3 ½	14.875	178.50	238.00	297.50
4	17.000	204.00	272.00	340.00
4 ½	19.125	229.50	306.00	382.50
5	21.250	255.00	340.00	425.00
5 ½	23.375	280.50	374.00	467.50
6	25.500	306.00	408.00	510.00
8	34.000	408.00	544.00	680.00
10	42.500	510.00	680.00	850.00
12	51.000	612.00	816.00	1020.00
1⅜x				
2	9.35	112.20	149.60	187.00
3	14.03	168.36	224.48	280.60
1½x				
1 ⅝	8.29	99.48	132.64	165.80
1 ¾	8.93	107.16	142.88	178.60
2	10.20	122.40	163.20	204.00
2 ¼	11.48	137.76	183.68	229.60
2 ½	12.75	153.00	204.00	255.00
2 ¾	14.03	168.36	224.48	280.60

Size in Inches	Wt per Ft Lbs.	Wt. of 12′ Bar	Wt. of 16′ Bar	Wt. of 20′ Bar
1½x				
3	15.30	183.60	244.80	306.00
3 ¼	16.58	198.96	265.28	331.60
3 ½	17.85	214.20	285.60	357.00
4	20.40	244.80	326.40	408.00
4 ½	22.95	275.40	367.20	459.00
5	25.50	306.00	408.00	510.00
5 ½	28.05	336.60	448.80	561.00
6	30.60	367.20	489.60	612.00
8	40.80	489.60	652.80	816.00
10	51.00	612.00	816.00	1020.00
12	61.20	734.40	979.20	1224.00
1¾x				
2	11.90	142.80	190.40	238.00
2 ¼	13.39	160.68	214.24	267.80
2 ½	14.88	178.56	238.08	297.60
2 ¾	16.36	196.32	261.76	327.20
3	17.85	214.20	285.60	357.00
3 ¼	19.34	232.08	309.44	386.80
3 ½	20.83	249.96	333.28	416.60
4	23.80	285.60	380.80	476.00
4 ½	26.78	321.36	428.48	535.60
5	29.75	357.00	476.00	595.00
5 ½	32.73	392.76	523.68	654.60
6	35.70	428.40	571.20	714.00
2x				
2 ¼	15.30	183.60	244.80	306.00
2 ½	17.00	204.00	272.00	340.00
2 ¾	18.70	224.40	299.20	374.00
3	20.40	244.80	326.40	408.00
3 ¼	22.10	265.20	353.60	442.00
3 ½	23.80	285.60	380.80	476.00
4	27.20	326.40	435.20	544.00
4 ½	30.60	367.20	489.60	612.00
5	34.00	408.00	544.00	680.00
6	40.80	489.60	652.80	816.00
8	54.40	652.80	870.40	1088.00
10	68.00	816.00	1088.00	1360.00
12	81.60	979.20	1305.60	1632.00
2¼x				
2 ½	19.13	229.56	306.08	382.60
2 ¾	21.04	252.48	336.64	420.80
3	22.95	275.40	367.20	459.00
3 ¼	24.86	298.32	397.76	497.20
3 ½	26.78	321.36	428.48	535.60
4	30.60	367.20	489.60	612.00
4 ½	34.43	413.16	550.88	688.60
5	38.25	459.00	612.00	765.00
6	45.90	550.80	734.40	918.00
2½x				
2 ¾	23.38	280.56	374.08	467.60
3	25.50	306.00	408.00	510.00
3 ¼	27.63	331.56	442.08	552.60
3 ½	29.75	357.00	476.00	595.00
4	34.00	408.00	544.00	680.00
4 ½	38.25	459.00	612.00	765.00
5	42.50	510.00	680.00	850.00
6	51.00	612.00	816.00	1020.00
3x				
4	40.80	489.60	652.80	816.00
5	51.00	612.00	816.00	1020.00
6	61.20	734.40	979.20	1224.00
4x				
6	81.60	979.20	1305.60	1632.00

HOT ROLLED ALLOY STEELS
ALLOWANCE FOR MACHINING

AISI Manual Section 10

When ordering bars that are to be machined experience has shown that it is advisable for the purchaser to make adequate allowances for finishing, and specify hot rolled sizes accordingly.

These allowances require consideration of the manufacturing practice utilized to remove the surface metal, the length and size of bars, straightness, size tolerance and out-of-round tolerance. Bars are generally straightened before turning.

It is advisable that the allowances made be adequate to permit an actual stock removal from the surface of not less than the amount shown in the table below (e.g., in machining a one inch round, a minimum of 0.046 inch is removed from the diameter).

Specified Sizes, In.	Min. Stock Removal from Surface, In.
Up to 5/8 incl.	0.016
Over 5/8 to 7/8 incl.	0.021
Over 7/8 to 1 incl.	0.023
Over 1 to 1 1/8 incl.	0.025
Over 1 1/8 to 1 1/4 incl.	0.028
Over 1 1/4 to 1 3/8 incl.	0.030
Over 1 3/8 to 1 1/2 incl.	0.033
Over 1 1/2 to 2 incl.	0.042
Over 2 to 2 1/2 incl.	0.052
Over 2 1/2 to 3 1/2 incl.	0.072
Over 3 1/2 to 4 1/2 incl.	0.090
Over 4 1/2 to 5 1/2 incl.	0.110
Over 5 1/2 to 6 1/2 incl.	0.125
Over 6 1/2 to 8 incl.	0.155

HOT ROLLED CARBON STEEL BARS
MACHINING ALLOWANCES FOR ROUNDS

AISI Manual Section 8

Nominal Diameter of Hot Rolled Bar	Conventional Allowance for Turning on Diameter
1 1/2 to 3 incl.	1/8
Over 3	1/4

Bars are commonly straightened before turning.

CUTTING EXTRAS

PLANTS OFFICES

CIRCUMFERENCES AND AREAS OF CIRCLES

Diam. In.	Circum. In.	Area Sq. In.
1/64	.04909	.00019
1/32	.09818	.00077
3/64	.14726	.00173
1/16	.19635	.00307
5/64	.29452	.00690
3/32	.39270	.01227
7/64	.49087	.01917
1/8	.58905	.02761
9/64	.68722	.03758
5/32	.78540	.04909
11/64	.88357	.06213
3/16	.98175	.07670
13/64	1.0799	.09281
7/32	1.1781	.11045
15/64	1.2763	.12962
1/4	1.3744	.15033
17/64	1.4726	.17257
9/32	1.5708	.19635
19/64	1.6690	.22166
5/16	1.7671	.24850
21/64	1.8653	.27688
11/32	1.9635	.30680
23/64	2.0617	.33824
3/8	2.1598	.37122
25/64	2.2580	.40574
13/32	2.3562	.44179
27/64	2.4544	.47937
7/16	2.5525	.51849
29/64	2.6507	.55914
15/32	2.7489	.60132
31/64	2.8471	.64504
1/2	2.9452	.69029
33/64	3.0434	.73708
1	3.1416	.7854
1 1/16	3.3379	.8866
1 1/8	3.5343	.9940
1 3/16	3.7306	1.1075
1 1/4	3.9270	1.2272
1 5/16	4.1233	1.3530
1 3/8	4.3197	1.4849
1 7/16	4.5160	1.6230
1 1/2	4.7124	1.7671
1 9/16	4.9087	1.9175
1 5/8	5.1051	2.0739
1 11/16	5.3014	2.2365
1 3/4	5.4978	2.4053
1 13/16	5.6941	2.5802
1 7/8	5.8905	2.7612
1 15/16	6.0868	2.9483
2	6.2832	3.1416
2 1/16	6.4795	3.3410
2 1/8	6.6759	3.5466
2 3/16	6.8722	3.7583
2 1/4	7.0686	3.9761
2 5/16	7.2649	4.2000
2 3/8	7.4613	4.4301
2 7/16	7.6576	4.6664
2 1/2	7.8540	4.9087
2 9/16	8.0503	5.1572
2 5/8	8.2467	5.4119
2 11/16	8.4430	5.6727
2 3/4	8.6394	5.9396
2 13/16	8.8357	6.2126
2 7/8	9.0321	6.4918
2 15/16	9.2284	6.7771
3	9.4248	7.0686
3 1/16	9.6211	7.3662
3 1/8	9.8175	7.6699
3 3/16	10.014	7.9798
3 1/4	10.210	8.2958
3 5/16	10.407	8.6179
3 3/8	10.603	8.9462
3 7/16	10.799	9.2806
3 1/2	10.996	9.6211
3 9/16	11.192	9.9678
3 5/8	11.388	10.321
3 11/16	11.585	10.680
3 3/4	11.781	11.045
3 13/16	11.977	11.416
3 7/8	12.174	11.793
3 15/16	12.370	12.177
4	12.566	12.566
4 1/16	12.763	12.962
4 1/8	12.959	13.364
4 3/16	13.155	13.772
4 1/4	13.352	14.186
4 5/16	13.548	14.607
4 3/8	13.744	15.033
4 7/16	13.941	15.466
4 1/2	14.137	15.904
4 9/16	14.334	16.349
4 5/8	14.530	16.800
4 11/16	14.726	17.257
4 3/4	14.923	17.721
4 13/16	15.119	18.190
4 7/8	15.315	18.665
4 15/16	15.512	19.147
5	15.708	19.635
5 1/16	15.904	20.129
5 1/8	16.101	20.629
5 3/16	16.297	21.135
5 1/4	16.493	21.648
5 5/16	16.690	22.166
5 3/8	16.886	22.691
5 7/16	17.082	23.221
5 1/2	17.279	23.758
5 9/16	17.475	24.301
5 5/8	17.671	24.850
5 11/16	17.867	25.406
5 3/4	18.064	25.967
5 13/16	18.261	26.535
5 7/8	18.457	27.109
5 15/16	18.653	27.688
6	18.850	28.274
6 1/8	19.242	29.465
6 1/4	19.635	30.680
6 3/8	20.028	31.919
6 1/2	20.420	33.183
6 5/8	20.813	34.472
6 3/4	21.206	35.785
6 7/8	21.598	37.122
7	21.991	38.485
7 1/8	22.384	39.871
7 1/4	22.776	41.282
7 3/8	23.169	42.718
7 1/2	23.562	44.179
7 5/8	23.955	45.664
7 3/4	24.347	47.173
7 7/8	24.740	48.707
8	25.133	50.265
8 1/8	25.525	51.849
8 1/4	25.918	53.456
8 3/8	26.311	55.088
8 1/2	26.704	56.745
8 5/8	27.096	58.426
8 3/4	27.489	60.132
8 7/8	27.882	61.862
9	28.274	63.617
9 1/8	28.667	65.397
9 1/4	29.060	67.201
9 3/8	29.452	69.029
9 1/2	29.845	70.882
9 5/8	30.238	72.760
9 3/4	30.631	74.662
9 7/8	31.023	76.589
10	31.416	78.540
10 1/8	31.809	80.516
10 1/4	32.201	82.516
10 3/8	32.594	84.541
10 1/2	32.987	86.590
10 5/8	33.379	88.664
10 3/4	33.772	90.763
10 7/8	34.165	92.886
11	34.558	95.033
11 1/8	34.950	97.205
11 1/4	35.343	99.402
11 3/8	35.736	101.62
11 1/2	36.128	103.87
11 5/8	36.521	106.14
11 3/4	36.914	108.43
11 7/8	37.306	110.75
12	37.699	113.10
12 1/8	38.092	115.47
12 1/4	38.485	117.86
12 3/8	38.877	120.28
12 1/2	39.270	122.72
12 5/8	39.663	125.19
12 3/4	40.055	127.68
12 7/8	40.448	130.19
13	40.841	132.73
13 1/8	41.233	135.30
13 1/4	41.626	137.89
13 3/8	42.019	140.50
13 1/2	42.412	143.14
13 5/8	42.804	145.80
13 3/4	43.197	148.49
13 7/8	43.590	151.20
14	43.982	153.94
14 1/8	44.375	156.70
14 1/4	44.768	159.48
14 3/8	45.160	162.30
14 1/2	45.553	165.13
14 5/8	45.946	167.99
14 3/4	46.338	170.87
14 7/8	46.731	173.78
15	47.124	176.71
15 1/8	47.517	179.67
15 1/4	47.909	182.65
15 3/8	48.302	185.66
15 1/2	48.695	188.69
15 5/8	49.087	191.75
15 3/4	49.480	194.83
15 7/8	49.873	197.93
16	50.265	201.06
16 1/8	50.658	204.22
16 1/4	51.051	207.39
16 3/8	51.444	210.60
16 1/2	51.836	213.82
16 5/8	52.229	217.08
16 3/4	52.622	220.35
16 7/8	53.014	223.65
17	53.407	226.98
17 1/8	53.800	230.33
17 1/4	54.192	233.71
17 3/8	54.585	237.10
17 1/2	54.978	240.53
17 5/8	55.371	243.98
17 3/4	55.763	247.45
17 7/8	56.156	250.95
18	56.549	254.47
18 1/8	56.941	258.02
18 1/4	57.334	261.59
18 3/8	57.727	265.18
18 1/2	58.119	268.80
18 5/8	58.512	272.45
18 3/4	58.905	276.12
18 7/8	59.298	279.81
19	59.690	283.53
19 1/8	60.083	287.27
19 1/4	60.476	291.04
19 3/8	60.868	294.83

CIRCUMFERENCES AND AREAS OF CIRCLES (Cont'd)

Diam. In.	Circum. In.	Area Sq. In.	Diam. In.	Circum. In.	Area Sq. In.	Diam. In.	Circum. In.	Area Sq. In.
19½	61.261	298.65	28½	89.535	637.94	37½	117.810	1104.5
19⅝	61.654	302.49	28⅝	89.928	643.55	37⅝	118.202	1111.8
19¾	62.046	306.35	28¾	90.321	649.18	37¾	118.596	1119.2
19⅞	62.439	310.24	28⅞	90.713	654.84	37⅞	118.988	1126.7
20	62.832	314.16	29	91.106	660.52	38	119.381	1134.1
20⅛	63.225	318.10	29⅛	91.499	666.23	38⅛	119.773	1141.0
20¼	63.617	322.06	29¼	91.892	671.96	38¼	120.166	1149.1
20⅜	64.010	326.05	29⅜	92.284	677.71	38⅜	120.559	1156.6
20½	64.403	330.06	29½	92.677	683.49	38½	120.951	1164.2
20⅝	64.795	334.10	29⅝	93.070	689.30	38⅝	121.344	1171.7
20¾	65.188	338.16	29¾	93.462	695.13	38¾	121.737	1179.3
20⅞	65.581	342.25	29⅞	93.855	700.98	38⅞	122.129	1186.9
21	65.973	346.36	30	94.248	706.86	39	122.522	1194.6
21⅛	66.366	350.50	30⅛	94.640	712.70	39⅛	122.915	1202.3
21¼	66.759	354.66	30¼	95.033	718.69	39¼	123.308	1210.0
21⅜	67.152	358.84	30⅜	95.426	724.64	39⅜	123.700	1217.7
21½	67.544	363.05	30½	95.819	730.62	39½	124.093	1225.4
21⅝	67.937	367.28	30⅝	96.211	736.62	39⅝	124.486	1233.2
21¾	68.330	371.54	30¾	96.604	742.64	39¾	124.878	1241.0
21⅞	68.722	375.83	30⅞	96.997	748.69	39⅞	125.271	1248.8
22	69.115	380.13	31	97.389	754.77	40	125.664	1256.6
22⅛	69.508	384.46	31⅛	97.782	760.87	40⅛	126.056	1264.5
22¼	69.900	388.82	31¼	98.175	766.99	40¼	126.449	1272.4
22⅜	70.293	393.20	31⅜	98.567	773.14	40⅜	126.842	1280.3
22½	70.686	397.61	31½	98.960	779.31	40½	127.235	1288.2
22⅝	71.079	402.04	31⅝	99.353	785.51	40⅝	127.627	1296.2
22¾	71.471	406.49	31¾	99.746	791.73	40¾	128.020	1304.2
22⅞	71.864	410.97	31⅞	100.138	797.98	40⅞	128.413	1312.2
23	72.257	415.48	32	100.531	804.25	41	128.805	1320.3
23⅛	72.649	420.00	32⅛	100.924	810.54	41⅛	129.198	1328.3
23¼	73.042	424.56	32¼	101.316	816.86	41¼	129.591	1336.3
23⅜	73.435	429.13	32⅜	101.709	823.21	41⅜	129.983	1344.3
23½	73.827	433.74	32½	102.102	829.58	41½	130.376	1352.7
23⅝	74.220	438.36	32⅝	102.494	835.97	41⅝	130.769	1360.8
23¾	74.613	443.01	32¾	102.887	842.39	41¾	131.161	1369.0
23⅞	75.006	447.69	32⅞	103.280	848.83	41⅞	131.554	1377.2
24	75.398	452.39	33	103.673	855.30	42	131.947	1385.4
24⅛	75.791	457.11	33⅛	104.065	861.79	42⅛	132.340	1393.7
24¼	76.184	461.86	33¼	104.458	868.31	42¼	132.732	1402.0
24⅜	76.576	466.64	33⅜	104.851	874.85	42⅜	133.125	1410.3
24½	76.969	471.44	33½	105.243	881.41	42½	133.518	1418.6
24⅝	77.362	476.26	33⅝	105.636	888.00	42⅝	133.910	1427.0
24¾	77.754	481.11	33¾	106.029	894.62	42¾	134.303	1435.4
24⅞	78.147	485.98	33⅞	106.421	901.26	42⅞	134.696	1443.8
25	78.540	490.87	34	106.814	907.92	43	135.088	1452.2
25⅛	78.933	495.79	34⅛	107.207	914.61	43⅛	135.481	1460.7
25¼	79.325	500.74	34¼	107.600	921.32	43¼	135.874	1469.1
25⅜	79.718	505.71	34⅜	107.992	928.06	43⅜	136.267	1477.6
25½	80.111	510.71	34½	108.385	934.82	43½	136.659	1486.2
25⅝	80.503	515.72	34⅝	108.778	941.61	43⅝	137.052	1494.7
25¾	80.896	520.77	34¾	109.170	948.42	43¾	137.445	1503.3
25⅞	81.289	525.84	34⅞	109.563	955.25	43⅞	137.837	1511.9
26	81.681	530.93	35	109.956	962.11	44	138.230	1520.5
26⅛	82.074	536.05	35⅛	110.348	969.00	44⅛	138.623	1529.2
26¼	82.467	541.19	35¼	110.741	975.91	44¼	139.015	1537.9
26⅜	82.860	546.35	35⅜	111.134	982.84	44⅜	139.408	1546.6
26½	83.252	551.55	35½	111.527	989.80	44½	139.801	1555.3
26⅝	83.645	556.76	35⅝	111.919	996.87	44⅝	140.194	1564.0
26¾	84.038	562.00	35¾	112.312	1003.8	44¾	140.586	1572.8
26⅞	84.430	567.27	35⅞	112.705	1010.8	44⅞	140.979	1581.6
27	84.823	572.56	36	113.097	1017.9	45	141.372	1590.4
27⅛	85.216	577.87	36⅛	113.490	1025.0	45⅛	141.764	1599.3
27¼	85.608	583.21	36¼	113.883	1032.1	45¼	142.157	1608.0
27⅜	86.001	588.57	36⅜	114.275	1039.2	45⅜	142.550	1617.0
27½	86.394	593.96	36½	114.668	1046.3	45½	142.942	1626.0
27⅝	86.786	599.37	36⅝	115.061	1053.5	45⅝	143.335	1634.9
27¾	87.179	604.81	36¾	115.454	1060.7	45¾	143.728	1643.9
27⅞	87.572	610.27	36⅞	115.846	1068.0	45⅞	144.121	1652.9
28	87.965	615.75	37	116.239	1075.2	46	144.513	1661.9
28⅛	88.357	621.26	37⅛	116.632	1082.5	46⅛	144.906	1670.9
28¼	88.750	626.80	37¼	117.024	1089.8	46¼	145.299	1680.0
28⅜	89.143	632.36	37⅜	117.417	1097.1	46⅜	145.691	1689.1

CIRCUMFERENCES AND AREAS OF CIRCLES (Cont'd)

Diam. In.	Circum. In.	Area Sq. In.	Diam. In.	Circum. In.	Area Sq. In.	Diam. In.	Circum. In.	Area Sq. In.
46 1/8	146.084	1698.2	55 1/8	174.358	2419.2	64 1/8	202.633	3267.5
46 1/4	146.477	1707.4	55 1/4	174.751	2430.1	64 1/4	203.025	3280.1
46 3/8	146.869	1716.5	55 3/8	175.144	2441.1	64 3/8	203.418	3292.8
46 1/2	147.262	1725.7	55 1/2	175.536	2542.0	64 1/2	203.811	3305.6
46 5/8			55 5/8			64 5/8		
46 3/4			55 3/4			64 3/4		
46 7/8			55 7/8			64 7/8		
47	147.655	1734.9	56	175.929	2463.0	65	204.204	3318.3
47 1/8	148.048	1744.2	56 1/8	176.322	2474.0	65 1/8	204.596	3331.1
47 1/4	148.440	1753.5	56 1/4	176.715	2485.0	65 1/4	204.989	3343.9
47 3/8	148.833	1762.7	56 3/8	177.107	2496.1	65 3/8	205.382	3356.7
47 1/2	149.226	1772.1	56 1/2	177.500	2507.2	65 1/2	205.774	3369.6
47 5/8	149.618	1781.4	56 5/8	177.893	2518.3	65 5/8	206.167	3382.4
47 3/4	150.011	1790.8	56 3/4	178.285	2529.4	65 3/4	206.560	3395.3
47 7/8	150.404	1800.1	56 7/8	178.678	2540.6	65 7/8	206.952	3408.2
48	150.796	1809.6	57	179.071	2551.8	66	207.345	3421.2
48 1/8	151.189	1819.0	57 1/8	179.463	2563.0	66 1/8	207.738	3434.2
48 1/4	151.582	1828.5	57 1/4	179.856	2574.2	66 1/4	208.131	3447.2
48 3/8	151.975	1837.9	57 3/8	180.249	2585.4	66 3/8	208.523	3460.2
48 1/2	152.367	1847.5	57 1/2	180.642	2596.7	66 1/2	208.916	3473.2
48 5/8	152.760	1857.0	57 5/8	181.034	2608.0	66 5/8	209.309	3486.3
48 3/4	153.153	1866.5	57 3/4	181.427	2619.4	66 3/4	209.701	3499.4
48 7/8	153.545	1876.1	57 7/8	181.820	2630.7	66 7/8	210.094	3512.5
49	153.938	1885.7	58	182.212	2642.1	67	210.487	3525.7
49 1/8	154.331	1895.4	58 1/8	182.605	2653.5	67 1/8	210.879	3538.8
49 1/4	154.723	1905.0	58 1/4	182.998	2664.9	67 1/4	211.272	3552.0
49 3/8	155.116	1914.7	58 3/8	183.390	2676.4	67 3/8	211.665	3565.2
49 1/2	155.509	1924.4	58 1/2	183.783	2687.8	67 1/2	212.058	3578.5
49 5/8	155.902	1934.2	58 5/8	184.176	2699.3	67 5/8	212.450	3591.7
49 3/4	156.294	1943.9	58 3/4	184.569	2710.9	67 3/4	212.843	3605.0
49 7/8	156.687	1953.7	58 7/8	184.961	2722.4	67 7/8	213.236	3618.3
50	157.080	1963.5	59	185.354	2734.0	68	213.628	3631.7
50 1/8	157.472	1973.3	59 1/8	185.747	2745.6	68 1/8	214.021	3645.0
50 1/4	157.865	1983.2	59 1/4	186.139	2757.2	68 1/4	214.414	3658.4
50 3/8	158.258	1993.1	59 3/8	186.532	2768.8	68 3/8	214.806	3671.8
50 1/2	158.650	2003.0	59 1/2	186.925	2780.5	68 1/2	215.199	3685.3
50 5/8	159.043	2012.9	59 5/8	187.317	2792.2	68 5/8	215.592	3698.7
50 3/4	159.436	2022.8	59 3/4	187.710	2803.9	68 3/4	215.984	3712.2
50 7/8	159.829	2032.8	59 7/8	188.103	2815.7	68 7/8	216.377	3725.7
51	160.221	2042.8	60	188.496	2827.4	69	216.770	3739.3
51 1/8	160.614	2052.8	60 1/8	188.888	2839.2	69 1/8	217.163	3752.8
51 1/4	161.007	2062.9	60 1/4	189.281	2851.0	69 1/4	217.555	3766.4
51 3/8	161.399	2073.0	60 3/8	189.674	2862.9	69 3/8	217.948	3780.0
51 1/2	161.792	2083.1	60 1/2	190.066	2874.8	69 1/2	218.341	3793.7
51 5/8	162.185	2093.2	60 5/8	190.459	2886.6	69 5/8	218.733	3807.3
51 3/4	162.577	2103.3	60 3/4	190.852	2898.6	69 3/4	219.126	3821.0
51 7/8	162.970	2113.5	60 7/8	191.244	2910.5	69 7/8	219.519	3834.7
52	163.363	2123.7	61	191.637	2922.5	70	219.911	3848.5
52 1/8	163.756	2133.9	61 1/8	192.030	2934.5	70 1/8	220.304	3862.2
52 1/4	164.148	2144.2	61 1/4	192.423	2946.5	70 1/4	220.697	3876.0
52 3/8	164.541	2154.5	61 3/8	192.815	2958.5	70 3/8	221.090	3889.8
52 1/2	164.934	2164.8	61 1/2	193.208	2970.6	70 1/2	221.482	3903.6
52 5/8	165.326	2175.1	61 5/8	193.601	2982.7	70 5/8	221.875	3917.5
52 3/4	165.719	2185.4	61 3/4	193.993	2994.8	70 3/4	222.268	3931.4
52 7/8	166.112	2195.8	61 7/8	194.386	3006.9	70 7/8	222.660	3945.3
53	166.504	2206.2	62	194.779	3019.1	71	223.053	3959.2
53 1/8	166.897	2216.6	62 1/8	195.171	3031.3	71 1/8	223.446	3973.1
53 1/4	167.290	2227.0	62 1/4	195.564	3043.5	71 1/4	223.838	3987.1
53 3/8	167.683	2237.5	62 3/8	195.957	3055.7	71 3/8	224.231	4001.1
53 1/2	168.075	2248.0	62 1/2	196.350	3068.0	71 1/2	224.624	4015.2
53 5/8	168.468	2258.5	62 5/8	196.742	3080.3	71 5/8	225.017	4029.2
53 3/4	168.861	2269.1	62 3/4	197.135	3092.6	71 3/4	225.409	4043.3
53 7/8	169.253	2279.6	62 7/8	197.528	3104.9	71 7/8	225.802	4057.4
54	169.646	2290.2	63	197.920	3117.2	72	226.195	4071.5
54 1/8	170.039	2300.8	63 1/8	198.313	3129.6	72 1/8	226.587	4085.7
54 1/4	170.431	2311.5	63 1/4	198.706	3142.0	72 1/4	226.980	4099.8
54 3/8	170.824	2322.1	63 3/8	199.098	3154.5	72 3/8	227.373	4114.0
54 1/2	171.217	2332.8	63 1/2	199.491	3166.9	72 1/2	227.765	4128.2
54 5/8	171.609	2343.5	63 5/8	199.884	3179.4	72 5/8	228.158	4142.5
54 3/4	172.002	2354.3	63 3/4	200.277	3191.9	72 3/4	228.551	4156.8
54 7/8	172.395	2365.0	63 7/8	200.669	3204.4	72 7/8	228.944	4171.1
55	172.788	2375.8	64	201.062	3217.0	73	229.336	4185.4
55 1/8	173.180	2386.6	64 1/8	201.455	3229.6	73 1/8	229.729	4199.7
55 1/4	173.573	2397.5	64 1/4	201.847	3242.2	73 1/4	230.122	4214.1
55 3/8	173.966	2408.3	64 3/8	202.240	3254.8	73 3/8	230.514	4228.5

CIRCUMFERENCES AND AREAS OF CIRCLES (Cont'd)

Diam. In.	Circum. In.	Area Sq. In.
73 1/8	230.907	4242.9
73 1/4	231.300	4257.4
73 3/4	231.692	4271.8
73 7/8	232.085	4286.3
74	232.478	4300.8
74 1/8	232.871	4315.4
74 1/4	233.263	4329.9
74 3/8	235.656	4344.5
74 1/2	234.049	4359.2
74 5/8	234.441	4373.8
74 3/4	234.834	4388.5
74 7/8	235.227	4403.1
75	235.619	4417.9
75 1/8	236.012	4432.6
75 1/4	236.405	4447.4
75 3/8	236.798	4462.2
75 1/2	237.190	4477.0
75 5/8	237.583	4491.8
75 3/4	237.976	4506.7
75 7/8	238.368	4521.5
76	238.761	4536.5
76 1/8	239.154	4551.4
76 1/4	239.546	4566.4
76 3/8	239.939	4581.3
76 1/2	240.332	4596.3
76 5/8	240.725	4611.4
76 3/4	241.117	4626.4
76 7/8	241.510	4641.5
77	241.903	4656.6
77 1/8	242.295	4671.8
77 1/4	242.688	4686.9
77 3/8	243.081	4702.1
77 1/2	243.473	4717.3
77 5/8	243.866	4732.5
77 3/4	244.259	4747.8
77 7/8	244.652	4763.1
78	245.044	4778.4
78 1/8	245.437	4793.7
78 1/4	245.830	4809.0
78 3/8	246.222	4824.4
78 1/2	246.615	4839.8
78 5/8	247.008	4855.2
78 3/4	247.400	4870.7
78 7/8	247.793	4886.2
79	248.186	4901.7
79 1/8	248.579	4917.2
79 1/4	248.971	4932.7
79 3/8	249.364	4948.3
79 1/2	249.757	4963.9
79 5/8	250.149	4979.5
79 3/4	250.542	4995.2
79 7/8	250.935	5010.9
80	251.327	5026.5
80 1/8	251.720	5042.3
80 1/4	252.113	5058.0
80 3/8	252.506	5073.8
80 1/2	252.898	5089.6
80 5/8	253.291	5105.4
80 3/4	253.684	5121.2
80 7/8	254.076	5137.1
81	254.469	5153.0
81 1/8	254.862	5168.9
81 1/4	255.254	5184.9
81 3/8	255.647	5200.8
81 1/2	256.040	5216.8
81 5/8	256.433	5232.8
81 3/4	256.825	5248.9
81 7/8	257.218	5264.9
82	257.611	5281.0
82 1/8	258.003	5297.1
82 1/4	258.396	5313.3
82 3/8	258.789	5329.4
82 1/2	259.181	5345.6
82 5/8	259.574	5361.8
82 3/4	259.967	5378.1
82 7/8	260.359	5394.3
83	260.752	5410.6
83 1/8	261.145	5426.9
83 1/4	261.538	5443.3
83 3/8	261.930	5459.6
83 1/2	262.323	5476.0
83 5/8	262.716	5492.4
83 3/4	263.108	5508.8
83 7/8	263.501	5525.3
84	263.894	5541.8
84 1/8	264.286	5558.3
84 1/4	264.679	5574.8
84 3/8	265.072	5591.4
84 1/2	265.465	5607.9
84 5/8	265.857	5624.5
84 3/4	266.250	5641.2
84 7/8	266.643	5657.8
85	267.035	5674.5
85 1/8	267.428	5691.2
85 1/4	267.821	5707.9
85 3/8	268.213	5724.7
85 1/2	268.060	5741.5
85 5/8	268.999	5758.3
85 3/4	269.392	5775.1
85 7/8	269.784	5791.9
86	270.177	5808.8
86 1/8	270.570	5825.7
86 1/4	270.962	5842.6
86 3/8	271.355	5859.6
86 1/2	271.748	5876.5
86 5/8	272.140	5893.5
86 3/4	272.533	5910.6
86 7/8	272.926	5927.6
87	273.319	5944.7
87 1/8	273.711	5961.8
87 1/4	274.104	5978.9
87 3/8	274.497	5996.0
87 1/2	274.889	6013.2
87 5/8	275.282	6030.4
87 3/4	275.675	6047.6
87 7/8	276.067	6064.9
88	276.460	6082.1
88 1/8	276.853	6099.4
88 1/4	277.246	6116.7
88 3/8	277.638	6134.1
88 1/2	278.031	6151.4
88 5/8	278.424	6168.8
88 3/4	278.816	6186.2
88 7/8	279.209	6203.7
89	279.602	6221.1
89 1/8	279.994	6238.6
89 1/4	280.387	6256.1
89 3/8	280.780	6273.7
89 1/2	281.173	6291.2
89 5/8	281.565	6308.8
89 3/4	281.958	6326.4
89 7/8	282.351	6344.1
90	282.743	6361.7
90 1/8	283.136	6379.4
90 1/4	283.529	6397.1
90 3/8	283.921	6414.9
90 1/2	284.314	6432.6
90 5/8	284.707	6450.4
90 3/4	285.100	6468.2
90 7/8	285.492	6486.0
91	285.885	6503.9
91 1/8	286.278	6521.8
91 1/4	286.670	6539.7
91 3/8	287.063	6555.6
91 1/2	287.456	6575.5
91 5/8	287.848	6593.5
91 3/4	288.241	6611.5
91 7/8	288.634	6629.6
92	289.027	6647.6
92 1/8	289.419	6665.7
92 1/4	289.812	6683.8
92 3/8	290.205	6701.9
92 1/2	290.597	6720.1
92 5/8	290.990	6738.2
92 3/4	291.383	6756.4
92 7/8	291.775	6774.7
93	292.168	6792.9
93 1/8	292.561	6811.2
93 1/4	292.954	6829.5
93 3/8	293.346	6847.8
93 1/2	293.739	6866.1
93 5/8	294.132	6884.5
93 3/4	294.524	6902.9
93 7/8	294.917	6921.3
94	295.310	6939.8
94 1/8	295.702	6958.2
94 1/4	296.095	6976.7
94 3/8	296.488	6995.3
94 1/2	296.881	7013.8
94 5/8	297.273	7032.4
94 3/4	297.666	7051.0
94 7/8	298.059	7069.6
95	298.451	7088.2
95 1/8	298.844	7106.9
95 1/4	299.237	7125.6
95 3/8	299.629	7144.3
95 1/2	300.022	7163.0
95 5/8	300.415	7181.8
95 3/4	300.807	7200.6
95 7/8	301.200	7219.4
96	301.593	7238.2
96 1/8	301.986	7257.1
96 1/4	302.378	7276.0
96 3/8	302.771	7294.9
96 1/2	303.164	7313.8
96 5/8	303.556	7332.8
96 3/4	303.949	7351.8
96 7/8	304.342	7370.8
97	304.734	7389.8
97 1/8	305.127	7408.9
97 1/4	305.520	7428.0
97 3/8	305.913	7447.1
97 1/2	306.305	7466.2
97 5/8	306.698	7485.3
97 3/4	307.091	7504.5
97 7/8	307.483	7523.7
98	307.876	7543.0
98 1/8	308.269	7562.2
98 1/4	308.661	7581.5
98 3/8	309.054	7600.8
98 1/2	309.447	7620.1
98 5/8	309.840	7639.5
98 3/4	310.232	7658.9
98 7/8	310.625	7678.3
99	311.018	7697.7
99 1/8	311.410	7717.1
99 1/4	311.803	7736.6
99 3/8	312.196	7756.1
99 1/2	312.588	7775.6
99 5/8	312.981	7795.2
99 3/4	313.374	7814.8
99 7/8	313.767	7834.4
100	314.159	7854.0

CONVERTING INCHES INTO DECIMALS OF A FOOT

Inches	Decimal of a Ft.	Inches	Decimal of a Ft.	Inches	Decimal of a Ft.
	1/16...005208		1/16...338542		1/16...671875
	1/8 .010416		1/8 .343750		1/8 .677083
	3/16...015625		3/16...348958		3/16...682292
	1/4 .020833		1/4 .354166		1/4 .687500
	5/16 .026042		5/16 .359375		5/16 .692708
	3/8...031250		3/8...364583		3/8...697916
	7/16 .036458	4"	7/16 .369792	8"	7/16 .703125
0"	1/2 .041666	.33333	1/2 .375000	.66666	1/2 .708323
	9/16...046875		9/16...380208		9/16...713542
	5/8 .052083		5/8 .385416		5/8 .718750
	11/16 .057292		11/16 .390625		11/16 .723958
	3/4...062500		3/4...395833		3/4...729166
	13/16 .067708		13/16 .401042		13/16 .734375
	7/8 .072916		7/8 .406250		7/8 .739583
	15/16...078125		15/16...411458		15/16...744792
	1/16...088542		1/16...421875		1/16...755208
	1/8 .093750		1/8 .427083		1/8 .760416
	3/16...098958		3/16...432292		3/16...765625
	1/4 .104166		1/4 .437500		1/4 .770833
	5/16 .109375		5/16 .442708		5/16 .776042
	3/8...114583		3/8...447916		3/8...781250
	7/16 .119792		7/16 .453125		7/16 .786458
1"	1/2 .125000	5"	1/2 .458333	9"	1/2 .791666
.083333	9/16...130208	.416666	9/16...463542	.750	9/16...796875
	5/8 .135416		5/8 .468750		5/8 .802083
	11/16 .140625		11/16 .473958		11/16 .807292
	3/4...145833		3/4...479166		3/4...812500
	13/16 .151042		13/16 .484375		13/16 .817708
	7/8 .156250		7/8 .489583		7/8 .822916
	15/16...161458		15/16...494792		15/16...828125
	1/16...171875		1/16...505208		1/16...838542
	1/8 .177083		1/8 .510416		1/8 .843750
	3/16...182292		3/16...515625		3/16...848958
	1/4 .187500		1/4 .520833		1/4 .854166
	5/16 .192708		5/16 .526042		5/16 .859375
	3/8...197906		3/8...531250		3/8...864583
	7/16 .203175		7/16 .536458		7/16 .869792
2"	1/2 .208333	6"	1/2 .541666	10"	1/2 .875000
166666	9/16...213542	.50	9/16...546875	.833333	9/16...880208
	5/8 .218750		5/8 .552083		5/8 .885416
	11/16 .223958		11/16 .557292		11/16 .890625
	3/4...229166		3/4...562500		3/4...895833
	13/16 .234375		13/16 .567708		13/16 .901042
	7/8 .239583		7/8 .572916		7/8 .906250
	15/16...244792		15/16...578125		15/16...911458
	1/16...255208		1/16...588542		1/16...921875
	1/8 .260416		1/8 .593750		1/8 .927083
	3/16...265625		3/16...598958		3/16...932292
	1/4 .270833		1/4 .604166		1/4 .937500
	5/16 .276042		5/16 .609375		5/16 .942708
	3/8...281250		3/8...614583		3/8...947916
	7/16 .286458		7/16 .619792		7/16 .953125
3"	1/2 .291666	7"	1/2 .625000	11"	1/2 .958333
.250	9/16...296875	.583333	9/16...630208	.916666	9/16...963542
	5/8 .302083		5/8 .635416		5/8 .968750
	11/16 .307292		11/16 .640625		11/16 .973958
	3/4...312500		3/4...645833		3/4...979166
	13/16 .317708		13/16 .651042		13/16 .984375
	7/8 .322916		7/8 .656250		7/8 .989583
	15/16...328125		15/16...661458		15/16...994792

STANDARD VARIATIONS IN CUTTING

MATERIAL SHEARED FROM WAREHOUSE STOCK

The shearing variation listed below governs shearing on commodities as specified for shipments from warehouse stock. All orders we accept are subject to these variations in shearing unless otherwise specified. Prices for accurate shearing quoted upon application.

Bars and Bar Shapes	Over	Under
Rounds and Squares, up to 2 inch	1/4 inch	1/4 inch
Rounds and Squares, 2 inch to 7 1/4 inch	1/4 "	1/4 "
Flats, 1/4 inch to 5/8 inch thick	1/8 "	1/8 "
Flats, over 5/8 inch thick	1/4 "	1/4 "
Bar Tees and Channels, up to but not including 3 inch	1/4 "	1/4 "
Bar Angles, up to but not including 3 inch	1/8 "	1/8 "

Structurals	Over	Under
Beams, Channels and Tees, 6 inch and under	1/4 inch	1/4 inch
Beams, Channels and Tees, over 6 inch	3/8 "	3/8 "
Angles, 3 inch and larger	1/8 "	1/8 "

Plates (Except Sketches)	Over	Under
U. M. Plates, 5/8 inch and under, 24 inches wide and under	1/4 inch	1/4 inch
U. M. Plates, over 5/8 inch, 24 inches wide and under	1/4 "	1/4 "
Plates, 5/8 inch and under, 36 inches wide and under	1/4 "	1/4 "
Plates, 5/8 inch and under, over 36 inches wide	1/4 "	1/4 "
Plates, over 5/8 inch up to 9 feet 6 inches on cut edge	1/4 "	1/4 "
Plates, all thicknesses where cutting edge is longer than 9 feet 6 inches	5/16 "	5/16 "

Sheets—Rectangular	Over	Under
Sheets, No. 8 and 10 Gauge	1/8 inch	1/8 inch
Sheets, No. 12 to 18 Gauge	1/16 "	1/16 "
Sheets, No. 20 to 30 Gauge	1/16 "	1/16 "

Strip Steel	Over	Under
.120" and over	1/8 inch	1/8 inch
.109" to .050", incl.	1/16 "	1/16 "
.042" to .016", incl.	1/32 "	1/32 "

Shearing Charges

HOT ROLLED BARS

Per 100 Lb. Charge—Min. Shearing Charge 25c per Section

ROUNDS, SQUARES AND HEXAGONS

Diameter	Cut to Length: Over 10 ft.	Over 5 ft. to 10 ft.	Over 3 ft. to 5 ft.	Over 1 ft. to 3 ft.	6" to 1 ft. Incl.	Under 6"
Up to ½" incl.	$0.50	$0.60	$0.75	$0.95	$3.50	$7.00
9/16" to 1" incl.	.30	.30	.40	.60	2.10	4.00
1 1/16" to 1¼" incl.	.20	.25	.30	.55	1.10	2.20
Over 1¼"	See Cold Saw Cutting Extras.					

Charged on net weight except when resulting shorts are considered unsaleable.

FLATS

Thickness ¼" to ½" Incl.

Widths	Cut to Length: Over 10 Ft.	Over 5 ft. to 10 ft.	Over 3 Ft. to 5 ft.	Over 1 ft. to 3 ft.	6" to 1 ft. Incl.	Under 6"
Width 3/8" to 1" incl.	$0.40	$0.50	$0.60	$1.00	$3.00	$6.00
Width 1⅛" to 1¾" incl.	.35	.40	.50	.85	2.40	4.80
Width 2" to 3" incl.	.30	.35	.45	.70	2.10	4.20
Width over 3" to 6" incl.	.25	.30	.35	.55	1.70	3.60

Thickness 5/8" to 1" Incl.

Width 5/8" to 7/8" incl.	$0.35	$0.40	$0.50	$0.85	$2.40	$4.80
Width 1" to 1⅜" incl.	.30	.35	.45	.70	2.10	4.20
Width 1½" to 2¾" incl.	.25	.30	.35	.55	1.80	3.60
Width over 2¾" to 6" incl.	.20	.25	.30	.40	1.20	2.40

Flats over 1" thick—see Saw Cutting Extras.

Flats charged on net weight basis except where resulting shorts are considered unsaleable.

OTHER HOT ROLLED BARS

All ovals, half ovals, half rounds, screen bars, bevel edge, tires, spring steel, charged on gross weight, using Flat Bar shearing schedule.

HOT ROLLED STRIP

ROLLED EDGE—3/16" TO 16 GA. INCLUSIVE

Lighter than No. 16 Gauge—Extras on Application

Per 100 Lbs.—Min. Shearing Charge 25c per Section

	Over 8 ft.	Over 5 ft. to 8 ft.	Over 3 ft. to 5 ft.	1 ft. to 3 ft.	Under 1 ft.
1" wide and under	$0.80	$0.90	$1.25	$1.70	$6.50
1⅛" to 3"	.45	.55	.70	1.00	3.75
3¼" to 12" incl.	.30	.40	.60	.75	2.50

All charged on gross weight, except Hot Rolled Strip 3/16" thick over 6" wide which is sold at net weight and plate cutting extras.

Structural Shapes Cutting

BEAMS, CHANNELS, TEES, ZEES 3" and over
Angles, over 6" either leg
Lengths 5'0" and over.....no charge for cutting

Lbs. per Lineal Ft.	Under 5'0" Long per Cut	Lbs. per Lineal Ft.	Under 5'0" Long per Cut
Under 10 lbs.	$0.10	45.0 to under 65.0	$0.60
10.0 to under 17.5	.15	65.0 to under 90.0	.75
17.5 to under 30.0	.30	90.0 and over	.90
30.0 to under 45.0	.45		

Minimum cutting charge, 50 cents net per section and length.

STRUCTURAL ANGLES
3" to 6" leg inclusive.....under 5'0" long
CHARGE PER CUT

Weight per Lineal Foot in Lbs.		1' TO UNDER 5'0" LONG		UNDER 1' LONG	
		Under 50 Cuts	50 Cuts or Over	Under 50 Cuts	50 Cuts or Over
Incl.	Less Than				
2.50	2.68	$ .04	$ .03	$ .02	$ .02
2.68	4.18	.05	.04	.02	.02
4.18	7.06	.06	.05	.02	.02
7.06	10.69	.08	.06	.03	.02
10.69	15.21	.10	.08	.03	.02
15.21 and over		.11	.09	.03	.02

TOTAL cuts of one length, cross section, and analysis determine the charge in cents, per cut.
MINIMUM CHARGE—50c per item of one length, cross section, and analysis.

Bar Shapes Cutting

BAR SIZE ANGLES SHEARING EXTRAS
Per 100 Lb. Charge—Min. Cutting Charge 25c per Section

	Over 10 ft.	Over 5 ft. to 10 ft.	Over 3 ft. to 5 ft.	Over 1 ft. to 3 ft.	Over 6" to 1 ft.	6" and Under
Weight up to .80 lbs. per ft.	$0.80	$1.25	$1.50	$2.30	$4.00	$7.00
Over .80 to 1.80 lbs. per ft.	.60	.70	.85	1.10	3.50	6.00
Over 1.80 under 2.44 lbs. per ft.	.45	.55	.70	.90	3.00	5.00
2.44 lbs. and over per ft.	.30	.40	.55	.70	2.50	4.00

BAR SIZE ANGLES, CHANNELS, TEES AND ZEES
SAW CUTTING EXTRAS PER 100 LBS.
Min. Cutting Charge 25c per Section

	Over 10 ft.	Over 5 ft. to 10 ft.	Over 3 ft. to 5 ft.	Over 2 ft. to 3 ft.	Over 1 ft. to 2 ft.	Over 6" to 1 ft.	Over 3" to 6"	3" and Under
Weight up to .80 lbs. incl. per ft.	$0.90	$1.50	$1.70	$2.50	$3.50	$5.50	$9.00	$15.00
Over .80 to 1.80 lbs. incl. per ft.	.65	.90	1.20	2.00	3.00	4.50	8.00	13.00
Over 1.80 to 2.44 lbs. per ft.	.50	.75	1.00	1.75	2.50	4.00	7.00	11.50
2.44 lbs. incl. and over per ft.	.35	.60	.80	1.50	2.00	3.50	6.00	10.00

Angles 1"x1"x⅛" and larger, and all Zees are charged on net weight, except when the resulting shorts are considered unsaleable.
Angles ⅞"x⅞"x3/16" and all Channels and Tees charged on Gross Weight.

Cold Saw Cutting C.F. & H.R. Carbon Bar 227, 228
Alloy Bar Cutting 229
Plate Shearing 230
Plate Flame Cutting 231
Sheet Shearing 232, 233
Stainless Steel Cutting 234, 235
Tool Steel Cutting 236
Shearing H. R. Carbon Bar, Angle & Strip 224
Struct. Shapes Saw Cutting 225
Bar Shape Cutting 225
CUTTING EXTRAS
PLANTS OFFICES

CROSS SECTIONAL AREAS OF FLATS AND SQUARES—IN SQUARE INCHES

For Use with Cold Saw Cutting Schedule—Pages 227 and 228.

WIDTH	THICKNESS																		
	1/8"	3/16"	1/4"	5/16"	3/8"	7/16"	1/2"	5/8"	3/4"	7/8"	1"	1 1/4"	1 1/2"	1 3/4"	2"	2 1/4"	2 1/2"	3"	4"	5"
1/4 in.	.05	.05	.08	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
5/16	.05	.08	.08	.11	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
3/8	.05	.08	.11	.15	.15	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
1/2	.08	.11	.15	.20	.20	.25	.25	....	....	....	....	....	....	....	....	....	....	....	....	....
5/8	.08	.15	.20	.20	.25	.30	.37	.37	....	....	....	....	....	....	....	....	....	....	....	....
3/4	.11	.15	.20	.25	.30	.37	.44	.52	.52	....	....	....	....	....	....	....	....	....	....	....
7/8	.11	.20	.25	.30	.37	.44	.44	.60	.70	.70	....	....	....	....	....	....	....	....	....	....
1	.15	.20	.25	.37	.44	.44	.52	.70	.80	1.00	1.00	....	....	....	....	....	....	....	....	....
1 1/4	.20	.25	.37	.44	.52	.60	.70	.80	1.00	1.25	1.25	1.75	....	....	....	....	....	....	....	....
1 1/2	.20	.30	.44	.52	.60	.70	.80	1.00	1.25	1.50	1.50	2.00	2.50	....	....	....	....	....	....	....
1 3/4	.25	.37	.44	.60	.70	.80	1.00	1.25	1.50	1.75	1.75	2.50	2.75	3.00	....	....	....	....	....	....
2	.25	.44	.52	.70	.80	1.00	1.00	1.25	1.50	1.75	2.00	2.50	3.00	4.00	4.00	....	....	....	....	....
2 1/4	.30	.44	.60	.70	1.00	1.00	1.25	1.50	1.75	2.00	2.50	3.00	4.00	4.00	5.00	5.00	....	....	....	....
2 1/2	.37	.52	.70	.80	1.00	1.25	1.25	1.75	2.00	2.50	2.50	4.00	4.00	5.00	5.00	6.00	7.00	....	....	....
2 3/4	.37	52	.70	1.00	1.25	1.25	1.50	1.75	2.50	2.50	2.75	4.00	5.00	5.00	6.00	7.00	7.00	....	....	....
3	.44	.60	.80	1.00	1.25	1.50	1.50	2.00	2.50	2.75	5.00	4.00	5.00	6.00	6.00	7.00	8.00	10.00	....	....
3 1/2	.44	.70	1.00	1.25	1.50	1.75	1.75	2.50	2.75	4.00	4.00	5.00	6.00	7.00	7.00	8.00	10.00	13.00	....	....
4	.52	.80	1.00	1.25	1.50	1.75	2.00	2.50	3.00	4.00	4.00	5.00	6.00	7.00	8.00	10.00	10.00	13.00	16.00	....
4 1/2	.60	1.00	1.25	1.50	1.75	2.00	2.50	3.00	4.00	4.00	5.00	6.00	7.00	8.00	10.00	13.00	13.00	16.00	20.00	....
5	.70	1.00	1.25	1.75	2.00	2.50	2.50	4.00	4.00	5.00	5.00	7.00	8.00	10.00	10.00	13.00	13.00	16.00	20.00	28.00
6	.80	1.25	1.50	2.00	2.50	2.75	3.00	4.00	5.00	6.00	6.00	8.00	10.00	13.00	13.00	16.00	16.00	20.00	24.00	33.00
7	1.00	1.50	1.75	2.50	2.75	3.00	4.00	5.00	6.00	7.00	7.00	10.00	13.00	13.00	16.00	16.00	20.00	24.00	28.00	38.00
8	1.00	1.50	2.00	2.50	3.00	4.00	4.00	5.00	6.00	7.00	8.00	10.00	13.00	16.00	16.00	20.00	20.00	24.00	33.00	44.00
9	1.25	1.75	2.50	3.00	4.00	4.00	5.00	6.00	7.00	8.00	10.00	13.00	16.00	16.00	20.00	20.00	24.00	28.00	38.00	44.00
10	1.25	2.00	2.50	4.00	4.00	5.00	5.00	7.00	8.00	10.00	10.00	13.00	16.00	20.00	20.00	24.00	28.00	33.00	44.00	50.00
12	1.50	2.50	3.00	4.00	5.00	6.00	6.00	8.00	10.00	13.00	13.00	16.00	20.00	24.00	24.00	28.00	33.00	38.00	50.00	64.00

NOTE—The cross sectional area of any shape of steel bar may be determined by dividing the weight per foot by 3.4. This schedule may be used for odd shapes by obtaining the cross section in this manner and applying the cutting charge accordingly.

Cold Saw Cutting

The Schedule on pages 226 to 228 inclusive, is used on Hot Rolled Steel Bars when saw cut and on all Cold Finished Steel whether sawed or sheared to length.

Examples:

6 Pieces 4-7/16" Round T. & P. Shafting cut 6'6" long.

First: Refer to schedule letters immediately below. Letter E applies. Then get the "Extra per 100 lbs." from the schedule at bottom of page. For Schedule E, 6'6" long the charge is .25 cwt.

Second: Obtain the charge per cut from page 228. For 5 to 9 cuts of 4-7/16" Rd. (use 4½" next larger) the charge is 40c per cut.

For flats, obtain the cross section area from page 226. Then proceed as above to obtain the letter schedule, the charge per 100 lbs. and the charge per cut.

SCHEDULE LETTERS

Use to determine extra per 100 lbs. from schedule below.

	Up to 4" Incl.	Over 4" to 6" Incl.	Over 6" to 8" Incl.	Over 8"
SOFT STEEL & H. R. RYCASE				
Rounds	D	C	B	..
*All other shapes	(see below) (1)			
FORGINGS AND .30 to .60 CARBON STEELS, RYTENSE A.A.				
Rounds	F	E	D	C
*All other shapes	(see below) (2)			
COLD FINISHED				
All Screw Stock, all Hexagons Rounds to 2⅞" inclusive	E	..	..	..
Rounds over 2⅞", all Squares T. & P., T. G. & P., all High Mang. C. F. Rycase, all .30 Carb. & higher	F	E	D	..
Accuracy and Piston Rod Stock	H	..	..	..
*Flats	(see below) (3) & (4)			

*SHAPES (NOT LISTED ABOVE)

Cross Sectional Area (See Table on page 226)	Up to 13 Sq. In. Incl.	Over 13 to 28 Sq. Ins.	Over 28 to 50 Sq. Ins.	Over 50 Sq. Ins.
(1) Soft Steel	F	E	D	C
(2) Forgings and .30 to .60 Carbon Steels	G	F	E	D
(3) Cold Finished Flats up to 6" wide incl.	G	F	..	..
(4) Cold Finished Flats over 6" wide	I	H	..	..

Extras per 100 lbs.

For Other than Stock Lengths

LGTH.	10 ft. and Over	Under 10 ft. to 5 ft.	Under 5 ft. to 3 ft.	Under 3 ft. to 2 ft.	Under 2 ft. to 1 ft.	Under 1 ft. to 6 in.	Under 6 in. to 3 in.	Under 3 in. to 1 in.	Under 1 in. to ½ in.	Under ½ in.
Schedule										
A	..10	05	10	15	20	25	50	75	...1.25	...2.50
B	.15	.10	.15	.20	.30	.35	.75	1.00	1.75	3.50
C	.20	.15	.20	.30	.40	.50	1.00	1.50	2.50	5.00
D	.25	.20	.25	.35	.50	.60	1.20	1.80	3.00	6.00
E	..30	25	30	45	60	75	...1.50	...2.25	...3.75	...7.50
F	.40	.30	.40	.60	.80	1.00	2.00	3.00	5.00	10.00
G	.50	.40	.50	.75	1.00	1.25	2.50	3.75	6.25	12.50
H	.60	.45	.60	.90	1.20	1.50	3.00	4.50	7.50	15.00
I	..70	55	70	...1.05	...1.40	...1.75	...3.50	...5.25	...8.75	..17.50

Cold Saw Cutting C.F. & H.R. Carbon Bar 227, 228
Alloy Bar Cutting 229
Plate Shearing 230
Plate Flame Cutting 231
Sheet Shearing 232, 233
Stainless Steel Cutting 234, 235
Tool Steel Cutting 236
PLANTS OFFICES

Cold Saw Cutting

CHARGES IN CENTS PER CUT

Applicable to all grades of hot rolled steel, forgings and cold finished steel. Tool steel, alloy steel and structural shapes not to be included.

Number of Cuts per Size

FLATS *Area in Sq. Inches	ROUNDS HEXA-GONS	Min. 15c 1-4 Cuts	Min. 20c 5-9 Cuts	Min. 25c 10-24 Cuts	Min. 25c 25-100 Cuts	Over 100 Cuts	SQUARES
.03	3/16	Min.	Min.	Min.	.005	.004	1/8
.05	1/4	Min.	Min.	Min.	.007	.006	3/16
.08	5/16	Min.	Min.	Min.	.009	.008	1/4
.11	3/8	Min.	Min.	.012	.011	.010	5/16
.15	7/16	Min.	Min.	.016	.015	.014	3/8
.20	1/2	Min.	.024	.022	.020	.018	7/16
.25	9/16	Min.	.026	.024	.022	.020	1/2
.30	5/8	Min.	.030	.026	.024	.022	9/16
.37	11/16	.044	.036	.030	.026	.024	5/8
.44	3/4	.050	.040	.034	.030	.027	11/16
.52	13/16	.056	.045	.036	.034	.030	3/4
.60	7/8	.060	.050	.040	.038	.033	13/16
.70	15/16	.065	.055	.045	.040	.035	7/8

FLATS *Area in Sq. Inches	ROUNDS HEXA-GONS	Min. 25c 1 Cut	Min. 25c 2-4 Cuts	5-9 Cuts	10-24 Cuts	25 Cuts & Over	SQUARES
.80	1	Min.	Min.	.055	.045	.04	15/16
1.00	1 1/8	Min.	.07	.06	.055	.05	1
1.25	1 1/4	Min.	.08	.07	.065	.06	1 1/8
1.50	1 3/8	Min.	.10	.09	.08	.07	1 3/16
1.75	1 1/2	Min.	.11	.10	.09	.08	1 5/16
2.00	1 5/8	Min.	.12	.11	.10	.09	1 7/16
2.50	1 3/4	Min.	.14	.13	.11	.10	1 1/2
2.75	1 7/8	Min.	.16	.15	.13	.12	1 5/8
3.00	2	Min.	.18	.16	.15	.13	1 3/4
4.00	2 1/4	Min.	.20	.18	.16	.14	2
5.00	2 1/2	.28	.22	.20	.18	.15	2 1/4
6.00	2 3/4	.32	.25	.22	.19	.16	2 3/8
7.00	3	.36	.28	.25	.21	.17	2 5/8
8.00	3 1/4	.40	.32	.28	.23	.19	2 7/8
10.00	3 1/2	.50	.35	.30	.25	.20	3
13.00	4	.60	.40	.35	.30	.23	3 1/2
16.00	4 1/2	.70	.50	.40	.35	.26	4
20.00	5	.80	.60	.50	.40	.30	4 3/8
24.00	5 1/2	1.00	.70	.60	.50	.35	4 7/8
28.00	6	1.20	.85	.70	.55	.45	5 1/4
33.00	6 1/2	1.40	1.00	.80	.65	.50	5 3/4
38.00	7	1.60	1.10	.90	.75	.60	6 1/4
44.00	7 1/2	1.80	1.30	1.10	.85	.65	...
50.00	8	2.00	1.50	1.20	1.00	.75	...
57.00	8 1/2	2.30	1.70	1.40	1.10	.85	...
64.00	9	2.50	1.90	1.60	1.20	.95	...
71.00	9 1/2	2.70	2.10	1.70	1.40	1.05	...
79.00	10	2.90	2.20	1.80	1.50	1.15	...
87.00	10 1/2	3.20	2.40	2.00	1.60	1.20	...
95.00	11	3.50	2.60	2.10	1.70	1.30	...
104.00	11 1/2	3.80	2.80	2.30	1.80	1.40	...
113.00	12	4.00	3.00	2.50	2.00	1.50	...

Intermediate sizes take price of next larger size.

*For Cross Sectional Areas of Flats, see page 226.

See page 227 for per 100 lb. extras for other than stock lengths.

Hack Sawing

ALLOY BARS

This schedule applies on the following:

HOT ROLLED ALLOY BARS—all sizes

COLD FINISHED ALLOY BARS—all sizes

CHARGE PER CUT

Weight per Lineal Foot in Lbs.		FIRST CUT	ADDITIONAL CUTS	
Incl.	Less Than	Any Length	Over 8′ Long	8′ Long or Under*
	1.05	$ .45†	$ .08	$ .05
1.05 to	2.68	.45†	.09	.07
2.68 to	4.18	.45†	.12	.09
4.18 to	7.06	.45†	.14	.12
7.06 to	10.69	.59	.19	.16
10.69 to	15.21	.59	.23	.18
15.21 to	20.41	.75	.33	.24
20.41 to	28.80	.75	.39	.27
28.80 to	37.56	.75	.42	.30
37.56 to	42.74	.98	.46	.34
42.74 to	53.13	.98	.57	.45
53.13 to	70.15	.98	.75	.60
70.15 to	84.49	1.20	.90	.75
84.49 to	96.81	1.20	1.12	.90
96.81 to	112.83	1.35	1.27	1.05
112.83 to	130.91	1.50	1.42	1.20
130.91 to	170.91	1.90	1.72	1.35
170.91 to	221.1	2.25	1.87	1.50
221.1 to	272.1	3.00	2.62	2.10
272.1 to	323.1	3.75	3.38	2.70
323.1 to	384.6	4.50	4.12	3.40

TOTAL cuts of one length, size, shape, finish, and analysis determine the charge in cents per cut.

*LENGTHS under 0′1″ use charge for next higher weight bracket.

†MINIMUM TOTAL CHARGES—50c net per item of one length, size, shape, finish, and analysis.

NITRALLOY

Cutting and Wastage Extras

Wastage—Charge per 100 Lbs.

Length		Length	
6″ and under 12″	$0.25	36″ and under 48″	$1.00
12″ and under 24″	.50	48″ and under 60″	1.25
24″ and under 36″	.75	60″ or over	1.50

Cutting—Charge per Cut

Diameter		Diameter	
¾″ or smaller	$0.03	Over 3″ to 3½″	$0.20
Over ¾″ to 1½″	.05	Over 3½″ to 4″	.30
Over 1½″ to 2″	.065	Over 4″ to 5″	.40
Over 2″ to 2½″	.10	Over 5″ to 6″	.65
Over 2½″ to 3″	.14		

Minimum cutting charge, 50 cents net per item of one length, size and analysis.

Alloy Bar Cutting 229
Plate Shearing 230
Plate Flame Cutting 231
Sheet Shearing 232, 233
Stainless Steel Cutting 234, 235
Tool Steel Cutting 236
PLANTS OFFICES

Plate Cutting Charges

Per 100 Lbs.

These shearing charges apply to 3/16" to 1" thicknesses.

Quality	Gross Weight Basis
Sheared, Flange, Firebox, Copper Alloy, E-Z Cut, High Carbon Universal Mill, Floor Plates	Nearest Stock width in Sheared or U.M. plates
H.R. Strip 3/16" x over 6" wide H.R. Sheets 3/16" over 12" wide	Listed stock widths
Pickled and Oiled	12" Multiples, width and length
Abrasion Resisting and Hi-Steel	12" Multiples in width 24" Multiples in length

RECTANGLES 1" THICK AND LIGHTER

TO LENGTH ONLY Stock Widths	LENGTH 5 ft. and Longer	Under 5 ft. to 3 ft.	Under 3 ft. to 2 ft.	Under 2 ft. to 1 ft.	Under 1 foot
3/16" to 5/16" thick incl.	$0.00	$0.20	$0.35	$0.50	$1.55
Over 5/16" to 1/2" thick incl.	.00	.15	.25	.50	1.55
Over 1/2" to 1" thick incl.	.00	.10	.25	.50	1.55
Over 1" thick	.25	.35	.50	.75	1.55

TO WIDTH AND LENGTH (or width only) Widths Over 6"	3 ft. and Longer	Under 3 ft. to 2 ft.	Under 2 ft. to 1 ft.	Under foot 1
3/16" to 5/16" thick incl.	$0.40	$0.55	$0.80	$1.85
Over 5/16" to 1/2" thick incl.	.35	.50	.75	1.80
Over 1/2" to 1" thick incl.	.30	.45	.70	1.75
Over 1" thick	See below.			

Widths 6" and Under, Any Length (Net weight) $3.25

Minimum charge for each thickness, 50c net.

RECTANGULAR PLATES OVER 1" THICK
CUT TO WIDTH AND LENGTH OR TO WIDTH ONLY
ALL WIDTHS OTHER THAN STOCK WIDTHS

Width Governs

Widths	5 ft. and Over	Under 5 ft. to 3 ft.	Under 3 ft. to 2 ft.	Under 2 ft. to 1 ft.	Under 1 ft. to 6"	Under 6"
	$0.25	$0.35	$0.50	$0.75	$1.55	$3.10

Charged on net weight. Minimum charge $1.50 Net per thickness.

SKETCH PLATE SHEARING EXTRAS

Ordinary sketch plates up to 1" thick inclusive, with no re-entrant cuts, will be charged on the basis of labor involved; but the extra for cutting will not be less than the regular width and length shearing charges, plus 25c per 100 lbs. for special shape, based on the gross weight of the nearest stock width.

Sketch plates over 1" thick, see Flame Cutting Extras.

Plate Flame Cutting

FOR SHAPES OTHER THAN RECTANGULAR ONLY

Extras Per Lineal Foot

Thickness (Inches)	First 100 Ft. of Any Item	Addl. Footage Over 100 Ft. of Any Item
3/16	$ .19	$ .10
1/4	.19	.10
5/16	.20	.11
3/8	.21	.12
7/16	.22	.13
1/2	.23	.14
9/16	.24	.15
5/8	.25	.16
3/4	.26	.17
7/8	.35	.26
1	.37	.28
1 1/8	.38	.29
1 1/4	.39	.30
1 3/8	.40	.31
1 1/2	.41	.32
1 5/8	.42	.33
1 3/4	.43	.34
2	.45	.36
2 1/4	$ .47	$ .38
2 1/2	.49	.40
2 3/4	.53	.44
3	.57	.48
3 1/4	.61	.52
3 1/2	.65	.56
3 3/4	.69	.60
4	.73	.64
4 1/2	.81	.72
5	.89	.80
5 1/2	.99	.90
6	1.07	.98
6 1/2	1.16	1.07
7	1.24	1.15
7 1/2	1.33	1.24
8	1.46	1.37
9	1.73	1.64
10	2.01	1.92

Charges are based on lineal feet for each item. Fractions of an inch are charged at next full inch. Minimum charge $1.50 net per item.

CIRCULAR PLATES

Thickness up to 2" inclusive charged on weight of square plate 1/2" larger than diameter of circle plus the above extras on the circumference of the circle. Thickness over 2" charged on weight of square plate 1" larger than the diameter of circle plus the above extras on the circumference of the circle.

RINGS

The gross weight of rings will be charged on same basis as circular plates plus the above extras for the inside and outside circumference of the ring. One additional foot of burning will be added for drilling or blowing the lead hole.

SKETCH PLATES

Over 1" thick charged on the weight of smallest rectangle from which same can be cut, plus above extras per lineal foot of perimeter of sketch.

UNUSUAL SKETCHES

Including curves, re-entrant cuts, etc.—Extras quoted on application. When Sketch Plates can be nested to avoid excessive waste, charge will be made accordingly.

Plate Shearing 230
Plate Flame Cutting 231
Sheet Shearing 232, 233
Stainless Steel Cutting 234, 235
Tool Steel Cutting 236
PLANTS OFFICES

Sheet Shearing Charges

Applicable to all Carbon Sheets No. 8 gauge and lighter (Including Safety Plates 1/8" and lighter)

Minimum Charge.....$1.00 per item

CUTTING TO ONE DIMENSION ONLY (Strips)

DOLLARS PER 100 LBS.

UNCUT DIMENSION LGTH. or WIDTH	DIMENSION CUT TO: Under 1"	1" to Under 2"	2" to Under 3"	3" to Under 6"	6" to Under 12"	12" to Under 18"	18" to Under 36"	36" to Under 72"	72" and Over
Nos. 8, 9, 10 Gauge									
72" or Less	3.05	1.55	0.90	0.65	0.60	0.60	0.55	0.35	0.25
Over 72" to 120"	1.80	0.90	0.60	0.35	0.35	0.30	0.30	0.25	...
Over 120" to 144"	1.90	0.95	0.60	0.35	0.30	0.30	0.25	0.25	...
Nos. 11, 12, 13, 14 Gauge									
72" or Less	2.40	1.20	0.75	0.75	0.70	0.70	0.65	0.45	0.35
Over 72" to 120"	1.10	0.80	0.60	0.45	0.40	0.40	0.35	0.35	...
Over 120" to 144"	2.00	1.00	0.60	0.45	0.40	0.40	0.35	0.35	...
Nos. 15, 16, 17, 18 Gauge									
60" or Less	2.05	1.55	0.95	0.90	0.85	0.80	0.75	0.55	0.45
Over 60" to 120"	1.40	0.95	0.80	0.55	0.50	0.50	0.45	0.45	...
Over 120" to 144"	2.60	1.30	0.80	0.55	0.50	0.50	0.45	0.45	...
Nos. 19, 20, 21, 22 Gauge									
48" or Less	4.70	2.35	1.45	1.40	1.00	0.90	0.80	0.65	0.55
Over 48" to 120"	2.10	1.20	0.95	0.70	0.60	0.60	0.55	0.55	...
Over 120" to 144"	3.70	1.85	1.10	0.75	0.60	0.60	0.55	0.55	...
Nos. 23, 24, 25, 26 Gauge									
48" or Less	7.40	3.70	2.25	2.20	1.60	1.45	1.35	0.95	0.70
Over 48" to 120"	3.30	1.65	1.20	0.95	0.90	0.80	0.70	0.65	...
Over 120" to 144"	6.00	3.00	1.80	1.20	0.90	0.80	0.65	0.65	...
Nos. 27, 28, 29, 30 Gauge									
48" or Less	11.05	5.55	3.30	3.25	2.35	2.15	1.90	1.35	1.05
Over 48" to 120"	4.90	2.45	1.50	1.40	1.30	1.15	1.05	0.80	...
Over 120" to 144"	8.80	4.40	2.65	1.80	1.30	1.15	0.90	0.80	...

When the uncut dimension is over 144", we will quote individual prices on each specification.

Sheet Shearing Charges

CUTTING TO TWO DIMENSIONS
(Length & Width—Blanks)

DOLLARS PER 100 LBS.

FINISHED LENGTH Incl. Under	FINISHED WIDTH: 1" to Under 1"	2" to Under 2"	3" to Under 3"	6" to Under 6"	12" to Under 12"	18" to Under 18"	36" to Under 36"	72" Incl.
Nos. 8, 9, 10 Gauge								
Under 6"	*	6.20	3.70	2.80	...	...	...	...
6" to 12"	6.90	3.45	2.05	1.55	1.45	...	...	...
12" to 36"	4.40	2.55	1.65	1.25	1.05	0.95	0.75	...
36" to 72"	3.50	2.20	1.45	1.05	0.80	0.70	0.55	0.55
72" to 120"	2.95	2.20	1.45	1.05	0.65	0.60	0.50	0.50
120" to 144" Incl.	2.95	2.20	1.45	1.05	0.55	0.50	0.50	0.50
Nos. 11, 12, 13, 14 Gauge								
Under 6"	*	6.90	4.15	3.20	...	...	...	...
6" to 12"	7.70	3.85	2.40	1.80	1.80	...	...	...
12" to 36"	3.70	2.70	2.10	1.60	1.05	1.00	0.85	...
36" to 72"	3.15	2.35	1.80	1.35	0.85	0.75	0.75	0.65
72" to 120"	3.15	2.35	1.80	1.35	0.70	0.60	0.60	0.60
120" to 144" Incl.	3.15	2.35	1.80	1.35	0.60	0.60	0.60	0.60
Nos. 15, 16, 17, 18 Gauge								
Under 6"	*	9.45	5.65	5.30	...	...	...	...
6" to 12"	11.20	5.60	3.35	3.00	2.35	...	...	...
12" to 36"	5.10	3.35	2.70	1.85	1.40	1.25	0.95	...
36" to 60"	3.60	2.85	2.35	1.60	1.00	0.90	0.80	0.80
60" to 120"	3.60	2.85	2.35	1.60	0.70	0.70	0.70	0.70
120" to 144" Incl.	3.60	2.85	2.35	1.60	0.70	0.70	0.70	0.70
Nos. 19, 20, 21, 22 Gauge								
Under 6"	*	15.50	9.30	8.65	...	...	...	...
6" to 12"	17.20	8.65	5.15	4.80	3.90	...	...	...
12" to 36"	7.30	4.20	3.35	2.45	2.00	1.60	1.25	...
36" to 48"	5.00	3.60	2.85	2.10	1.30	1.20	0.90	0.90
48" to 120"	4.65	3.60	2.85	2.10	1.05	1.00	0.85	0.85
120" to 144" Incl.	4.80	3.60	2.85	2.10	1.00	0.85	0.85	0.85
Nos. 23, 24, 25, 26 Gauge								
Under 6"	*	*	*	*	...	...	...	...
6" to 12"	*	*	8.15	7.60	6.20	...	...	...
12" to 36"	11.50	5.75	4.10	3.50	3.15	2.55	2.00	...
36" to 48"	8.00	4.50	3.55	2.65	1.90	1.90	1.30	1.00
48" to 120"	5.65	4.50	3.55	2.65	1.65	1.55	1.15	0.95
120" to 144" Incl.	7.70	4.50	3.55	2.65	1.55	1.30	0.95	0.95
Nos. 27, 28, 29, 30 Gauge								
Under 6"	*	*	*	*	...	...	...	...
6" to 12"	*	*	12.20	11.30	9.25	...	...	...
12" to 36"	17.20	8.60	6.15	5.20	4.70	3.75	3.00	...
36" to 48"	12.00	6.00	4.20	3.50	3.10	2.85	1.95	1.45
48" to 120"	7.50	5.25	4.20	3.15	2.40	2.35	1.70	1.30
120" to 144" Incl.	11.40	5.70	4.20	3.15	2.35	1.95	1.45	1.05

*For these small sizes, special prices will be quoted on application. Special prices will also be quoted on application for lengths over 144".

Sheet Shearing 232, 233

Stainless Steel Cutting 234, 235

Tool Steel Cutting 236

PLANTS OFFICES

Stainless Steel Cutting Charges

BARS

Length, Inches	Per 100 Lbs.	Length, Inches	Per 100 Lbs.
Under ½	$50.00	10 to under 36	$2.25
½ to under 1	37.00	36 to under 48	2.75
1 to under 1½	19.50	48 to under 60	3.25
1½ to under 2	13.00	60 to under 72	4.00
2 to under 3	9.75	72 to under 84	4.50
3 to under 4	6.50	84 to under 96	5.00
4 to under 5	4.50	96 to under 180	4.00
5 to under 6	4.00	180 to under 240	5.50
6 to under 8	3.25	240 to under 312	7.75
8 to under 10	2.75		

ANGLES

Length, Inches	Per 100 Lbs.	Length, Inches	Per 100 Lbs.
Under 12	No Extra	60 to under 120	$1.75
12 to under 36	$0.75	120 and over	2.25
36 to under 60	1.25	Stock Lengths	Base

PLATES—RECTANGLES AND SQUARES

Plates will be furnished cut to size on a net weight basis at the following extras.

Width Extras:

10" & under	(Priced as Bars)
Over 10" to 18"	$2.00
Over 18" to 30"	1.00
Over 30" to 50"	Base
Over 50" to 80"	.50
Over 80" to 100"	1.00

Length Extras:

Under 60"	1.25
60" to 20'0"	Base
Over 20'0"	.75

PLATE CIRCLES

When cut to size 8" diameter and larger on straight blade shear, add 33⅓% to price of plate after all extras have been applied.

When extra smooth edge or smaller diameter is required, special price will be quoted.

Stainless Steel Cutting Charges

SHEETS—RECTANGLES AND SQUARES

Shearing Extras—When customer does not take product of full sheet.

Ga.	Up to 9" Wide	9" to Under 12" Wide	12" to Under 18" Wide	18" to Under 24" Wide	24" to 36" Wide Incl.	Over 36" Wide
NO. 2 FINISH						
8 to 16	$4.38	$4.55	$6.56	$6.83	$8.75	$9.10
18	4.38	4.58	6.56	6.86	8.75	9.15
20	4.38	4.60	6.56	6.90	8.75	9.20
22	4.45	4.73	6.68	7.09	8.90	9.45
24	4.50	4.78	6.75	7.16	9.00	9.55
26	4.93	5.33	7.39	7.99	9.85	10.65
28	5.00	5.40	7.46	8.06	9.92	
NO. 4 FINISH						
10	5.08	5.25	7.61	7.88	10.15	10.50
11	5.10	5.28	7.65	7.91	10.20	10.55
12	5.13	5.30	7.69	7.95	10.25	10.60
13	5.15	5.33	7.73	7.99	10.30	10.65
14	5.18	5.35	7.76	8.03	10.35	10.70
16	5.23	5.40	7.84	8.10	10.45	10.80
18	5.30	5.50	7.95	8.25	10.60	11.00
20	5.58	5.80	8.36	8.70	11.15	11.60
22	6.08	6.35	9.11	9.53	12.15	12.70
24	6.40	6.68	9.60	10.01	12.80	13.35
26	7.20	7.60	10.80	11.40	14.40	15.20

Stainless Steel Guage	Charge for First Cut	Additional Cuts	Stainless Steel Guage	Charge for First Cut	Additional Cuts
No. 10	$0.60	$0.20	No. 18	$0.50	$0.15
11	.60	.20	20	.50	.15
12	.60	.20	22	.40	.10
14	.60	.20	24	.35	.10
16	.50	.15	26	.35	.10

One first cut will apply for each thickness ordered. In no case shall shearing charge exceed the value of the cut piece figured at $0.12 per lb.

SHEET CIRCLES

When cut to size 5" diameter and larger on straight blade shear, price as a square and charge for weight of a square ½" larger than diameter of circle and add the following extra for shearing to circle:

8c (eight cents) per inch of diameter.

Minimum charge—$1.00 net per thickness.

When extra smooth edge or smaller diameter is required, special price will be quoted.

Stainless Steel Cutting 234, 235

Tool Steel Cutting 236

PLANTS OFFICES

Tool Steel Cutting Charges

Extras for machine cutting to dead lengths and for wastage.

Per 100 Pounds

	Rounds to 2" Dia. Incl., All Flats, Squares, Hexagons, Octagons	Rounds Over 2" Dia.
36 and over	4.50	2.00
24 to under 36	3.50	2.00
14 " " 24	3.50	3.00
10 " " 14	3.50	3.50
8 " " 10	4.50	4.50
7 " " 8	5.00	5.00
6 " " 7	5.50	5.50
5 " " 6	5.50	5.50
4 " " 5	6.00	6.00
3¾ " " 4	7.00	7.00
3½ " " 3¾	8.50	8.50
3¼ " " 3½	9.00	9.00
3 " " 3¼	9.50	9.50
2¾ " " 3	10.00	10.00
2½ " " 2¾	10.50	10.50
2¼ " " 2½	12.00	12.00
2 " " 2¼	14.00	14.00
1⅞ " " 2	15.00	15.00
1¾ " " 1⅞	15.50	15.50
1⅝ " " 1¾	16.50	16.50
1½ " " 1⅝	17.50	17.50
1⅜ " " 1½	20.00	20.00
1¼ " " 1⅜	21.50	21.50
1⅛ " " 1¼	23.50	23.50
1 " " 1⅛	27.00	27.00
⅞ " " 1	29.50	29.50
¾ " " ⅞	36.00	36.00
11/16 " " ¾	38.50	38.50
⅝ " " 11/16	42.00	42.00
9/16 " " ⅝	45.50	45.50
½ " " 9/16	50.50	50.50
7/16 " " ½	54.50	54.50
⅜ " " 7/16	59.00	59.00
5/16 " " ⅜	64.00	64.00
¼ " " 5/16	68.00	68.00

RAIL CUTTING CHARGES

Per 100 Lb. Charge

	2 Ft. and Over	Under 2 Ft. to 1 Ft.	Under 1 Ft. to 6"	Under 6" to 4"	Under 4" to 2"
All Rails	$0.25	$0.40	$0.85	$1.40	$2.30

All rails charged on gross weight basis.

GENERAL CONDITIONS AND TERMS OF SALE

For your information and guidance, we are pleased to list the general conditions and terms on which all quotations are made and all orders accepted. Other data regarding shipping practices, etc., are also included. If everything is not clear, we urge you to call or write us.

Quotations—We are always glad to quote specific prices on any product listed in this catalog and on many other products that are not listed. The following generally accepted conditions apply: Prices quoted are subject to change without notice; delivery promises made are subject to delays in delivery caused by strikes and other conditions beyond our control; all quotations are made subject to acceptance within a reasonable time or within the time limits specified; quotations on material that is to be cut, fabricated or in other ways made unfit for resale by us, are made with the understanding that resulting contracts or orders once accepted are not subject to cancellation without our previous written consent.

Terms of Payment—Each individual invoice shows the payment terms that apply. All invoices are due on a net basis thirty days after date of invoice. The great majority of our products are subject to ½ of 1% discount for cash in ten days. On some commodities we allow 1% or 2% discount and there are a few that are sold on a net or no discount basis.

Deliveries—All shipping promises are made with the expectation that shipment will go forward as specified. However, fulfillment is always subject to availability of material and to conditions affecting shipment that are beyond our control.

Confirmation of Orders—Under normal conditions, warehouse material is shipped the same day or the next day after your order is received. For this reason, our telephone salesmen check very carfully with you to make sure your order is entered correctly. Since shipments will in most cases be made before we receive your confirming order, you must assume the risk involved in possible errors. When telephone orders are confirmed in writing, please be sure to clearly mark the orders "confirming", preferably across the face of the order, to avoid possibility of duplication. This will eliminate the inconvenience and expense involved in duplicate shipments.

Crating Sheets—Certain grades of sheets have a fine finish, or a degree of flatness, which must be protected while in transit. Even a slight surface defect caused by handling may render the sheets unfit for use. For this reason, it is our standard practice to crate all Stretcher Leveled, Long Terne, and wide sizes of Galvannealed sheets which are Stretcher Leveled, when ordered in lots under 3000 lbs. Only if we are specifically instructed not to crate will we ship the foregoing qualities of sheets in lots under 3000 lbs. without crating. The standard charges for crating will gladly be quoted on request. Please note that the crating charge can be eliminated on large orders if you have a private railroad siding, and we are able to route the shipment by rail so that it will travel to you without being transferred enroute. The crating charge can also be eliminated on large shipments by truck when we are able to get a single line haul to your destination. In the case of such large orders, going direct to you, sheets are strapped on skids, or carefully blocked in the car or truck.

Wrapping and Boxing Bars—Because of the difficulty in handling material that is oiled and greased, the Tariff Regulations require that all Cold Finished Bars, when shipped by express, be boxed or wrapped the entire length. In order to protect the fine finish on our Ground and Polished Accuracy Stock and on Turned, Ground and Polished Shafting, we box all orders whether shipped by rail, truck or express. There are standard charges for these services which will gladly be quoted on request.

Boxing Cold Drawn Mechanical Tubing—We make no charge for boxing or protecting tubes of such small diameters or light walls that there would be danger of damage in transit. Such sizes include all diameters where the wall thickness is No. 16 gauge and lighter, and all wall thicknesses having an outside diameter under ½" (except the range 9/16" O.D. to 2⅞" O.D. inclusive, 16 Ga. wall). All other sizes (including the 16 Ga. wall sizes above) are shipped without boxing. If you request that larger sizes be protected or boxed, a charge is made which is based on our actual cost.

Boxing Small Pieces and Broken Lots—Occasionally, customers order a large number of very small pieces of a material not normally boxed for shipment. However, if for reasons of security in shipment, we find it necessary to pack small pieces in containers (boxes, barrels, drums) a nominal charge is made, based on the actual cost of the container and labor.

Defective Material—All of our material is carefully inspected before it is stocked in our warehouse, and again before we ship it to a customer. Our inspectors are trained and experienced steel men who are well qualified to identify steel that will not meet commercial specifications. In spite of the precautions that we take, it is sometimes impossible to detect all imperfections. We guarantee to replace any material that proves defective within a reasonable time, providing it has been properly worked or used. Customers are required to hold aside any such material until we have inspected it and given disposition. Please remember that we do not assume responsibility for labor costs which may be invested in material or for the cost of repairing a defective article or for any other damages in excess of the true value of the defective material itself.

Materials for Boiler Construction—In the construction of boilers and pressure vessels, Federal laws, and some State laws, require certain chemical and physical test reports on the material used, and the stamping of boiler plates, heads and accessories with the maker's name and identification marks. If boiler construction material is to comply with any of these specifications, such information should be placed on the order. We do not assume any responsibility other than replacing material that does not conform to necessary requirments for the construction of a boiler or pressure vessel.

Claims Against Transportation Companies—Here are some suggestions that will be helpful to you if a shipment should arrive in damaged condition, or if you should discover a shortage. First, show a notation of damage or shortage on the receipt that you give the carrier, or his representative, and second, request the carrier's representative to show a similar notation on the freight bill. Failure to do this will destroy the legal basis for a claim because the carrier will then be in possession of a clear delivery receipt. If the damaged material is in a carload shipment, do not unload the car, until the carrier's representative has inspected and noted the damage. If a shortage occurs in a carload shipment, make an immediate report to the carrier's agent at destination and be sure to confirm it in writing. All claims against transportation companies must be presented within nine (9) months from the date of shipment. Do not delay, however, in filing a claim. It is advisable to act as promptly as possible, but the nine month limitation is important because transportation companies cannot legally pay claims that are filed later than the nine month period.

PLANTS
OFFICES

FRACTION AND DECIMAL EQUIVALENTS

1/64	.015625
1/32	.03125
3/64	.046875
1/16	.0625
5/64	.078125
3/32	.09375
7/64	.109375
1-8	.125
9/64	.140625
5/32	.15625
11/64	.171875
3/16	.1875
13/64	.203125
7/32	.21875
15/64	.234375
1-4	.25
17/64	.265625
9/32	.28125
19/64	.296875
5/16	.3125
21/64	.328125
11/32	.34375
23/64	.359375
3-8	.375
25/64	.390625
13/32	.40625
27/64	.421875
7/16	.4375
29/64	.453125
15/32	.46875
31/64	.484375
1-2	.5
33/64	.515625
17/32	.53125
35/64	.546875
9/16	.5625
37/64	.578125
19/32	.59375
39/64	.609375
5-8	.625
41/64	.640625
21/32	.65625
43/64	.671875
11/16	.6875
45/64	.703125
23/32	.71875
47/64	.734375
3-4	.75
49/64	.765625
25/32	.78125
51/64	.796875
13/16	.8125
53/64	.828125
27/32	.84375
55/64	.859375
7-8	.875
57/64	.890625
29/32	.90625
59/64	.921875
15/16	.9375
61/64	.953125
31/32	.96875
63/64	.984375
1	1.

THEORETICAL WEIGHT OF STEEL PLATES

STEEL PLATES

Size in Inches	Wt. per Sq. Ft., Lbs.
3/16	7.65
1/4	10.20
5/16	12.75
3/8	15.30
7/16	17.85
1/2	20.40
9/16	22.95
5/8	25.50
3/4	30.60
7/8	35.70
1	40.80
1 1/8	45.90
1 1/4	51.00
1 3/8	56.10
1 1/2	61.20
1 5/8	66.30
1 3/4	71.40
2	81.60
2 1/4	91.80
2 1/2	102.00
2 3/4	112.20
3	122.40
3 1/4	132.60
3 1/2	142.80
3 3/4	153.00
4	163.20
4 1/4	173.40
4 1/2	183.60
5	204.00
5 1/2	224.40
6	244.80
6 1/2	265.20
7	285.60
7 1/2	306.00
8	326.40
9	367.20
10	408.00

STAINLESS STEEL PLATES

Size in Inches	Wt. per Sq. Ft., Lbs. — Straight Chrome Alloys	Wt. per Sq. Ft., Lbs. — Chrome Nickel Alloys
3/16	7.590	7.752
13/64	8.222	8.398
7/32	8.855	9.044
15/64	9.487	9.690
1/4	10.120	10.336
17/64	10.752	10.981
9/32	11.384	11.627
5/16	12.649	12.920
11/32	13.914	14.211
3/8	15.179	15.503
13/32	16.444	16.795
7/16	17.709	18.087
15/32	18.974	19.379
1/2	20.239	20.671
9/16	22.769	23.255
5/8	25.299	25.839
11/16	27.829	28.423
3/4	30.359	31.007
13/16	32.888	33.590
7/8	35.418	36.174
15/16	37.948	38.758
1	40.478	41.342

APPROXIMATE WEIGHT OF VARIOUS METALS

To find the weight of various metals, mutiply the contents in cubic inches by the number shown below; the result will be the approximate weight in pounds.

Iron ..... .27777	Brass ..... .3112	Tin 26562
Steel ..... .28332	Lead ..... .41015	Aluminum . .09375
Copper ... .32118	Zinc ..... .25318	

STANDARD SHEET GAUGES

STEEL SHEETS			GALVANIZED SHEETS		STAINLESS STEEL SHEETS			
U.S. (Revised) or Mfrs. Gauge	Thickness, Inches	Wt. per Sq. Ft. Lbs.	Galvanized Sheet Gauge	Wt. per Sq. Ft., Lbs.	Stainless, Sheet Gauge	Thickness, Inches	Wt. per Sq. Ft., Lbs. Straight Chrome Alloys	Wt. per Sq. Ft., Lbs. Chrome Nickel Alloys
¼" thick and heavier are plates.								
7	.1793	7.500						
8	.1644	6.875						
9	.1494	6.250						
10	.1345	5.625	10	5.7812	10	.140625	5.7937	5.9062
11	.1196	5.000	11	5.1562	11	.125000	5.1500	5.2500
12	.1046	4.375	12	4.5312	12	.109375	4.5063	4.5937
13	.0897	3.750	13	3.9062	13	.093750	3.8625	3.9375
14	.0747	3.125	14	3.2812	14	.078125	3.2187	3.2812
15	.0673	2.812	15	2.9687	15	.070312	2.8968	2.9531
16	.0598	2.500	16	2.6562	16	.062500	2.5750	2.6250
17	.0538	2.250	17	2.4062	17	.056250	2.3175	2.3625
18	.0478	2.000	18	2.1562	18	.050000	2.0600	2.1000
19	.0418	1.750	19	1.9062	19	.043750	1.8025	1.8375
20	.0359	1.500	20	1.6562	20	.037500	1.5450	1.5750
21	.0329	1.375	21	1.5312	21	.034375	1.4160	1.4437
22	.0299	1.250	22	1.4062	22	.031250	1.2875	1.3125
23	.0269	1.125	23	1.2812	23	.028125	1.1587	1.1813
24	.0239	1.000	24	1.1562	24	.025000	1.0300	1.0500
25	.0209	.875	25	1.0312	25	.021875	.9013	.9187
26	.0179	.750	26	.9062	26	.018750	.7725	.7875
27	.0164	.6875	27	.8437	27	.017187	.7081	.7218
28	.0149	.625	28	.7812	28	.015625	.6438	.6562
29	.0135	.5625	29	.7187	29	.014062	.5794	.5906
30	.0120	.500	30	.6562	30	.012500	.5150	.5250

To avoid errors specify decimal part of an inch or mention gauge number and the name of the gauge.

Orders for a definite gauge weight or gauge thickness, will be subject to standard gauge weight or gauge thickness tolerance, applying equally plus and minus from the ordered gauge weight or gauge thickness.

U. S. Standard Gauge—Iron and steel sheets. Note: U. S. Standard Gauge was established by act of Congress in 1893, in which weights per square foot were indicated by gauge number. The weight, not thickness, is the determining factor when the material is ordered to this gauge.

The Galvanized Sheet Gauge, established by custom, is based on the United States Standard Gauge, each galvanized sheet gauge weight being 2.5 oz. per sq. ft. heavier than the gauge weight of the same United States Standard Gauge number, regardless of coating weights.

STEEL WIRE GAUGES

Ga. No.	Birmingham Wire Gauge or Stubs Ga. Thickness, Inches	Birmingham Wire Gauge or Stubs Ga. *Wt. per Sq. Ft.	Brown & Sharpe or American Wire	Steel Wire Gauge (Washburn & Moen)	Ga. No.	Birmingham Wire Gauge or Stubs Ga. Thickness, Inches	Birmingham Wire Gauge or Stubs Ga. *Wt. per Sq. Ft.	Brown & Sharpe or American Wire	Steel Wire Gauge (Washburn & Moen)
3	.259	10.567	.2294	.2437	17	.058	2.366	.0453	.0540
4	.238	9.710	.2043	.2253	18	.049	1.999	.0403	.0475
5	.220	8.976	.1819	.2070	19	.042	1.714	.0359	.0410
6	.203	8.282	.1620	.1920	20	.035	1.428	.0320	.0348
7	.180	7.344	.1443	.1770	21	.032	1.306	.0285	.0317
8	.165	6.732	.1285	.1620	22	.028	1.142	.0253	.0286
9	.148	6.038	.1144	.1483	23	.025	1.020	.0226	.0258
10	134	5.467	.1019	.1350	24	.022	.898	.0201	.0230
11	.120	4.896	.0907	.1205	25	020	.816	.0179	.0204
12	.109	4.447	.0808	.1055	26	.018	.734	.0159	.0181
13	.095	3.876	.0720	.0915	27	.016	.653	.0142	.0173
14	.083	3.386	.0641	.0800	28	.014	.571	.0126	.0162
15	.072	2.938	.0571	.0720	29	.013	.530	.0113	.0150
16	.065	2.652	.0508	.0625	30	.012	.490	.0100	.0140

Birmingham or Stubs Gauge—Cold rolled strip, round edge flat wire, cold rolled spring steel, seamless steel and stainless tubing and boiler tubes.

***B. W. gauge weights per square foot are theoretical and are based on the steel weight of 40.8 lbs. per square foot of 1" thickness. Weight of hot rolled strip is predicated by using this factor.**

Steel Wire Gauge—(Washburn & Moen Gauge)—Round steel wire in black annealed, bright basic, galvanized, tinned and copper coated.

Steel-Service PLANTS

District Sales OFFICES

BOSTON

Mail Address: Box 1111, Boston 3, Mass.*
Plant: Third & Binney Sts., Cambridge 42, Mass.
Phone: KIrkland 7-6000
Teletype: CAMB MASS 186

NEW YORK

Mail Address: Box 484, Jersey City 3, N. J.*
Plant: 203 Westside Ave., Jersey City, N. J.
Phones: New York City—WOrth 4-1313
Jersey City—BErgen 4-1123
Newark—MArket 2-6067
Teletype: J CY 1865

PHILADELPHIA

Mail Address: Box 7349, Philadelphia 1, Pa.*
Plant: 5200 Grays Ave., Philadelphia, Pa.
Phone: BElgrade 6-1412. **Teletype:** PH 393

BUFFALO

Mail Address: Box 996, Buffalo 5, New York*
Plant: 40 Stanley St., Buffalo, N. Y.
Phone: BAiley 3311. **Teletype:** BU 87

PITTSBURGH

Mail Address: Box 1919, Pittsburgh 30, Pa.*
Plant: Arch St. and Bell Ave., Carnegie, Pa.
Phones: WAlnut 1-7540; Carnegie 3063
Teletype: Carnegie, Pa. 54

CLEVELAND

Mail Address: Box 6208, Cleveland 1, Ohio*
Plant: 5300 Lakeside Ave., Cleveland, Ohio
Phone: HEnderson 1-1000. **Teletype:** CV 381

CINCINNATI

Mail Address: Box 300, Cincinnati 14, Ohio*
Plant: 3475 Spring Grove Ave., Cincinnati, O.
Phone: KIrby 3241. **Teletype:** CI 297
Dayton, Ohio Telephone: Fulton 6242
Louisville, Ky. Telephone: Jackson 8281

CHICAGO

Mail Address: Box 8000-A, Chicago 80, Ill.*
Plant: 16th & Rockwell Streets, Chicago, Ill.
Phone: ROckwell 2-2121. **Teletype:** CG 700-701
East Chicago, Gary, Hammond, Indiana Harbor, and Whiting, Indiana Telephone: Enterprise 8100
Grand Rapids, Mich.: Ask operator for 10216.

DETROIT

Plant: 1600 E. Euclid Ave., Detroit 11, Mich.
Phone: TRinity 4-3311. **Teletype:** DE 58

ST. LOUIS

Mail Address: Box 527, St. Louis 3, Missouri*
Plant: 5 Clinton Street, St. Louis, Mo.
Phone: CEntral 1020. **Teletype:** SL 83

MILWAUKEE

Mail Address: Box 534, Milwaukee 1, Wis.*
Plant: 320 S. 19th St., Milwaukee 1, Wisconsin
Phone: MItchell 5-7000. **Teletype:** MI 87

LOS ANGELES

Mail Address: Box 3817, Los Angeles 54, Calif.*
Plant: 4310 E. Bandini Blvd., Los Angeles, Calif.
Phone: ANgelus 2-6141. **Teletype:** LA 523
San Diego Telephone: Zenith 6660

SAN FRANCISCO

Mail Address: Box 188, Emeryville, Calif.*
Plant: 65th and Hollis Sts., Emeryville, Calif.
Phones: OLympic 3-2933, Enterprise 10176
S.F. Zone Only, Ask "Operator" for Enterprise 10176
(No Inter-City charge) **Teletype:** OA-253

*FAST MAIL SERVICE—Hourly pick up from P. O. Box

ROCKFORD

608 New City Hall Bldg.
Rockford, Illinois
Phones: 4-5679, 4-5670
Teletype: RK 93

ROCK ISLAND

Room 344, First Nat'l Bank Bldg.
Rock Island, Illinois
Phones: Rock Island 6-2627, 6-2628
Teletype: RI 186

MINNEAPOLIS

628 Lumber Exchange Bldg.
Fifth Street and Hennepin Ave.
Minneapolis 1, Minn.
Phones:
ATlantic 2563, Midway 4431
Teletype: MP 452

INDIANAPOLIS

333 N. Pennsylvania Street
Indianapolis 4, Indiana
Phone: LIncoln 5568
Teletype: IP 370

SOUTH BEND

Room 412, Platt Bldg.
Wayne and Michigan Aves.
South Bend, Ind.
Phone: 3-2191
Teletype: TWX 70

KANSAS CITY

Room 1002, Porter Bldg.
406 W. 34th St.
Kansas City 2, Missouri
Phones: VAlentine 1661, 1662
Teletype: KC 194

DENVER

Room 17, Ferguson Bldg.
711—17th St., Denver 2, Colo.
Phone: KEystone 1269
Teletype: DN 56

TULSA

616 Tri State Insurance Bldg.
Tulsa 3, Oklahoma
Phones: 4-9116, 4-9117
Teletype: TU 192

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42 East Avenue
Rochester 4, New York
Phones: BAker 4980-4989
Teletype: RO 90

HARTFORD

49 Pearl Street
Hartford 3, Connecticut
Phone: Hartford 7-4297
Teletype: HF 298

BRIDGEPORT

83 Fairfield Avenue
Bridgeport 3, Connecticut
Phone: Bridgeport 6-1147

SYRACUSE

208 Larned Bldg.
Syracuse, New York
Phone: Syracuse 2-1296
Teletype: SYR 85

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